

The Health of British Seamen in the West Indies, 1770 - 1806

Submitted by Coriann Convertito to the University of Exeter as a thesis for the degree of Doctor of Philosophy in Maritime History in August 2011.

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Abstract

This thesis examines the impact of disease and mortality on the Royal Navy in the West Indies from 1770 to 1806. It also investigates the navy's medical branch which was established to manage the care of sick seamen. Using an interdisciplinary approach, this thesis produces a cohesive understanding of how disease and mortality affected the navy's presence in the West Indies and the ways in which the navy attempted to mitigate their impact. This thesis explores various aspects of naval medicine including the history of the Sick and Hurt Board, the diseases which distressed seamen, the medicines distributed by the navy, the key personnel who were integral in generating changes to the medical system and the development of hospital facilities.

Largely based on Admiralty records including correspondence and minutes from the Sick and Hurt Board, ships' muster books and surgeons' journals, this thesis investigates the most prevalent diseases in the West Indies and the prescribed treatments advocated by the navy. It then examines how these diseases and treatments affected seamen on board ships in that region through a quantitative analysis; then focuses on a number of the integral naval personnel who ushered in sweeping changes to naval medicine; and explores the navy's increasing desire to transition from hired sick quarters to purpose-built naval hospitals on various West Indies islands. It concludes with a case study of the development of Antigua naval hospital which demonstrates the effectiveness of these facilities in convalescing sick seamen.

Through a quantitative analysis of ships' muster books, this thesis argues that the levels of sickness and mortality in the navy in the West Indies during the late eighteenth century are largely exaggerated in historical studies while also discrediting the myth that those islands were the 'white man's graveyard' for many naval personnel. By surveying over 100,000 seamen on board ships in that region, sickness and mortality figures emerge which indicate that, on average, less than 4 per cent of seamen were on the sick list at any given time and only a small percentage died, meaning that the majority remained on active duty. This thesis then argues that many of the changes to the navy's medical system that facilitated such low percentages were primarily instigated by surgeons, physicians and captains who identified beneficial medicines and championed their general distribution among the entire fleet. By looking at these aspects of naval medicine through a multidisciplinary lens rather than a purely administrative one, it is possible to understand the true state of health of British seamen in the West Indies during the last quarter of the eighteenth century.

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List of Abbreviations

ADM	Admiralty
AL	Admiralty Library and Royal Naval Museum Library
BL	British Library
BLA	Gilbert Blane Papers
CO	Colonial Office
NMM	National Maritime Museum
PC	Privy Council Records
TNA	The National Archive, Kew

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Introduction

When England expanded its empire to the West Indies in the seventeenth century, it required the Royal Navy's presence in order to protect its lucrative trade network. Their attendance in that tropical region meant that seamen were frequently exposed to endemic diseases. Due to high levels of sickness and mortality in the early eighteenth century, the region quickly gained a reputation for being particularly unhealthy. In order to suppress the perilous conditions, the navy ordered their dedicated medical branch oversee the care of seamen both on board ships and ashore in convalescing facilities. This thesis will explore the health of the British seamen in the West Indies during the period 1770 to 1806 and will incorporate various facets of naval medicine in order to ascertain the true impact of disease and mortality at that time.

In 1623, a party of Englishmen established a permanent colony on the island of St Kitts (also known as St Christopher) followed by a settlement at Barbados a year later. These islands were England's first footholds in the West Indies, a region which in due course produced considerable wealth for those who chose to invest in local agriculture and export their goods to Europe and North America. Colonisation of additional islands such as Jamaica and Antigua led to a sizeable migration of Englishmen to the Caribbean in the seventeenth century.¹ For the maritime historian, this growth of English overseas markets in the West Indies is important because it created an extensive system of trade routes vulnerable to piracy and enemy attacks during wartime.² These merchant trade routes required a system of protection for their ships carrying valuable commodities back to England. Royal naval ships were ordered to the West Indies to undertake this responsibility serving on two individual naval stations: Jamaica and the Leeward Islands. The number of ships the navy ordered to these two stations was ever-increasing, thereby ensuring a vigilant presence and watchful eye on English settlers and merchant shipping.

Geographically, the West Indies is a chain of islands, varying in size from Cuba with its 44,000 square miles, to small islets of only a few acres each in area, and extends in the shape of a sickle blade from Florida to the northern coast of South America (Figure 0.1). The huge section of ocean lying between the chain and the American continent is called the Caribbean Sea, named after the Charaibes or Caribs, the warlike race which peopled the

¹ William Lux, *Historical Dictionary of the British Caribbean*, Latin American Historical Dictionaries, no.12 (Metuchen: The Scarecrow Press, 1975), p. 24.

² R.P. Crowhurst, 'The Admiralty and the Convoy System in the Seven Years War' in *Mariner's Mirror*, vol 57 (1971), p. 165.

smaller islands at the time of their discovery.³ The islands were also referred to as the ‘Antilles’ a name based on Antilla or Antiglia, the mythical land, which was for centuries believed to exist in the far west. Jamaica, Cuba, Hispaniola and Puerto Rico, the large islands to the north, are still referred to as the Greater Antilles, while the smaller islands to the east, beginning with St Thomas, are styled the Lesser Antilles.⁴

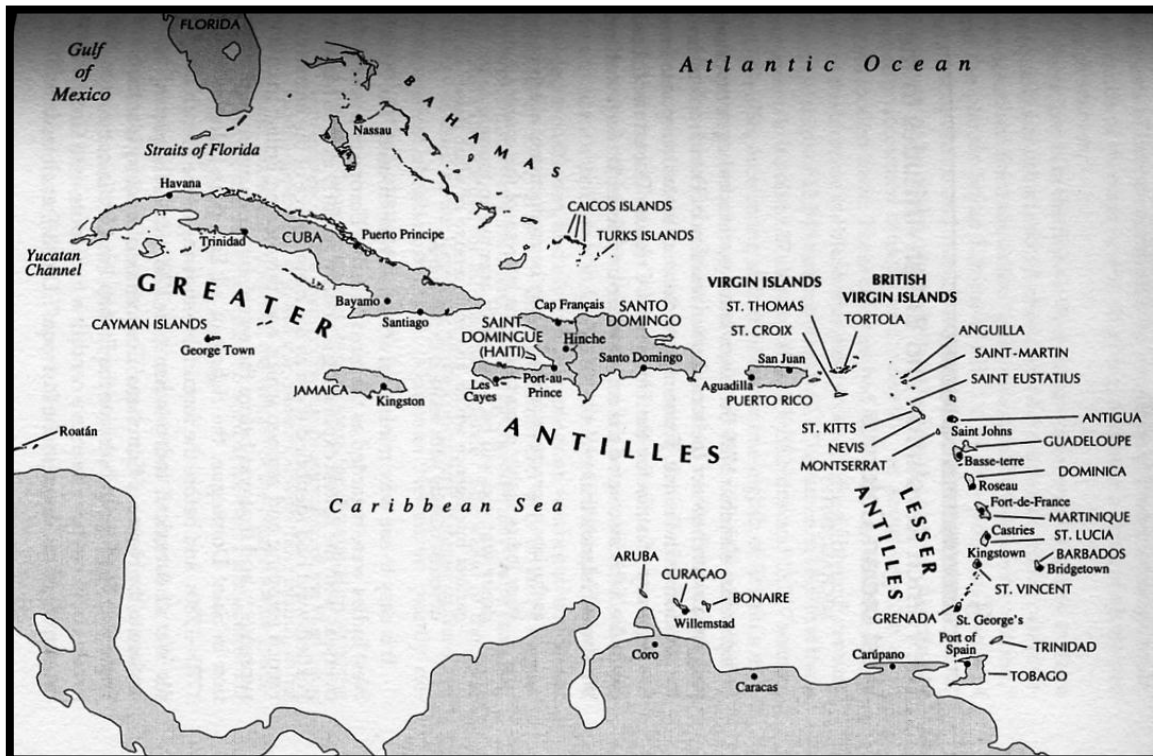


Figure 0.1 – Islands of the Caribbean 1779⁵

St Kitts was selected as the first English settlement because of its favourable geographic position, friendly natives, fertile soil and its abundant supply of fresh water. Colonization began on the island in 1623 with the arrival of Sir Thomas Warner, his family, and fourteen others. English settlers were joined in 1625 by a group of French settlers led by Pierre Belain d'Esnambue. The two parties wiped out the local Carib Indians in a massacre in 1626 and then turned their attention to colonising islands around them. A year after the settling of St Kitts, John Powell was returning home from Brazil when he landed at Barbados, which was all but uninhabited, and claimed the noticeably fertile land in the name of King James. The next significant island claimed by England was Antigua which was occupied and settled in 1632 by Warner, the same man who settled St Kitts. English control of Antigua was nearly short-lived for in 1666 a French force from Martinique,

³ Allister MacMillan (ed.), *The Red Book of the West Indies: Historical and Descriptive Commercial and Industrial Facts, Figures and Resources* (London: W.H. and L. Collingridge, 1922), p. 11.

⁴ Ibid.

⁵ David Barry Gaspar and David Patrick Geggus (eds.), *A Turbulent Time: The French Revolution and the Greater Caribbean* (Bloomington: Indiana University Press, 1997), p. 77.

joined by a number of Carib Indians, invaded the island and ravaged the country. By the Treaty of Breda in 1667, Antigua was restored to Great Britain, and in 1689 General Christopher Codrington became Governor and laid the foundations of the island's future prosperity.⁶ Jamaica was under Spanish control for almost 150 years until 1655 when Oliver Cromwell dispatched a fleet carrying 8,000 troops commanded by Admiral Penn to the West Indies under orders to conquer Hispaniola (also under Spanish control). Hispaniola turned out to be too strongly defended so Penn took his fleet to Jamaica. The Spanish fortifications at the latter island were weak and the garrison outnumbered. Penn issued the settlers an ultimatum and the inhabitants left the island for Cuba. The English marched into the deserted capital, Spanish Town, and took control of Jamaica although their claim was not formally acknowledged until the Treaty of Madrid in 1670.⁷ Aside from these long-term English settlements, a number of other West Indian islands fell in and out of their control during the seventeenth and eighteenth centuries. Some of the more economically significant islands which England laid claim to at one time or another were St Lucia and Martinique, both of whose histories entail English and French occupation.

For most of the seventeenth century, countries in Europe frequently went to war, funded in large part by imports from the West Indies. Despite the islands proving advantageous for financial reasons, physically, the West Indies did not feature as a strategic theatre of war. That all changed with the War of Spanish Succession (1701-1714). The treasure fleets of Spain and Portugal, which originated from the West Indies, were targeted for attack as were crucial West Indian ports which endured severe raids and plundering. Naval presence in that region swelled rapidly in order to protect European interests. Most notable for the English was the service of Admiral John Benbow who was ordered to the West Indies to suppress piracy and subsequently died of wounds received in an engagement with the French fleet led by Jean du Casse. By the conclusion of the war, the West Indies evolved strategically, both in an economical and physical sense. The increased significance of the region is best demonstrated by the terms of the Treaty of Utrecht in 1713 which gave Britain, a superior force in the war, a thirty-year asiento to supply slaves and goods to the Spanish West Indian colonies.⁸ This gave British traders crucial inroads into the

⁶ MacMillan (ed.), *The Red Book of the West Indies*, p. 325. The Treaty of Breda also restored Montserrat and St Kitts to the English.

⁷ Admiral Penn's arrival in Jamaica also saw the beginning of the naval practice of daily rum rations. The alcohol was allocated to the men instead of beer or fortified wine because neither was available in the West Indies. Rum became the natural alternative to beer for ships serving in that part of the world. See Eugene L. Rasor, *Reform in the Royal Navy: A Social History of the Lower Deck 1850-1880* (Hamden: Ardon Books, 1976), p. 82.

⁸ John Horace Parry, *The Spanish Seaborne Empire* (Berkeley: University of California Press, 1990), pp. 269-271.

traditionally closed markets of Spanish America and provided unparalleled economic advantages over other European countries.

The West Indies continued to grow in importance for European powers following the conclusion of the war, although the *asiento* eventually fuelled the outbreak of the War of Jenkins' Ear fifteen years later between the Spanish and the English in 1739. When Robert Jenkins, captain of an English merchant ship, was returning home from the West Indies, he was stopped and searched by a Spanish coast guard vessel under the pretext of ensuring the terms of the *asiento* were adhered to. The Spanish captain tied Jenkins to the mast and cut off his right ear. As the story goes, Jenkins returned to London and produced the severed ear to Parliament.⁹ This incident, along with some other dubious conduct executed by the Spanish caused a stir amongst the English public. They demanded Walpole seek compensation from Spain and when reparation was not forthcoming, a squadron of English warships was dispatched to the West Indies under the command of Admiral Vernon in order to molest Spanish shipping. One of his first actions was the capture of Spanish-held Porto Bello, a silver-exporting town on the coast of Panama, in an attempt to damage Spain's finances and weaken its naval capabilities. Vernon's tactics were so effective, they led the Spanish to change their trading practices; rather than trading at centralised ports with large treasure fleets, they began using a larger number of smaller convoys trading at a wider variety of ports.

With the War of Jenkins' Ear raging in the West Indies, the War of Austrian Succession broke out in Europe in 1742 and soon engulfed a number of other European powers; most unfavourable for England was the entry of France into the war in 1744. The rivalry between England and France was predominately centred round their West Indian sugar colonies and trade with North America and Europe.¹⁰ A number of battles between the two countries ensued predominantly in North America, India and Europe. With the war over in 1748, the English were initially given an extension of the *asiento* by the Treaty of Aix-la-Chapelle, although the Spanish opposed a number of the clauses. In 1750, by the Treaty of Madrid, England agreed to surrender the *asiento* for the cash sum of £100,000, but was permitted to continue trading with Spanish holdings in the Americas.¹¹

⁹ There is no official record of Jenkins' hearing at Parliament meaning there is no definitive proof that he actually produced the severed ear.

¹⁰ Lux, *Historical Dictionary of the British Caribbean*, pp. 34-35.

¹¹ John Fisher, 'Imperial Rivalries and Reforms' in Thomas H. Holloway (ed.), *A Companion to Latin American History* (Chichester: Blackwell, 2011), p. 181.

Between 1700 and 1760, West Indian sugar production tripled, with Jamaica the chief beneficiary of that prosperity.¹² From the conclusion of the War of Jenkins' Ear until 1756, England's holdings in the West Indies generated great wealth. Sugar prices were high. They averaged 33s-8d or 50 per cent higher than before the War of Jenkins' Ear which gave efficient planters a net return of 7 to 10 per cent. When the Seven Years' War began in 1756, the price of sugar plummeted.¹³ The lucrative trade in the West Indies forced France and England into war citing overlapping interests in their colonial and trade empires. Boundary disputes in North America and the West Indies also fuelled the desire to declare war. Most significant was France's failure to evacuate the four neutral islands of St Vincent, St Lucia, Dominica and Tobago as they had been ordered to do by Treaty of Aix La Chapelle.¹⁴ One of England's primary objectives during the conflict was to raid France's sugar-rich islands in the West Indies, a goal that was realised with the capture of the lucrative islands of Martinique and Guadeloupe. At the conclusion of the war in 1763, the Treaty of Paris extended a choice to France; they were either allowed control of the large French territory in North America or they had the opportunity to regain control of those two West Indian islands, the unselected option given to England. Appreciating the profitableness of the islands, France opted to regain control of them rather than the territory in North America. According to the terms of the treaty, Spain also lost control of Florida to England, meaning the latter gained control of all North American territory east of the Mississippi River. This arrangement suited England well as they maintained control of a number of sugar-producing islands in the West Indies and did not require Martinique and Guadeloupe for financial gain.

Following the war, the islands of the British West Indies continued their profitable trade to North America and Europe. In 1775, the value of British property or stock invested in the West Indies was estimated at £30 million, and by 1788, despite the ravages of the American War, the value was said to be £70 million.¹⁵ Figures from Mitchell's *British Historical Statistics* give an indication of the continued financial success of the West Indies colonies recorded from the onset of the Seven Years' War in 1756 to the end of the survey period (1806) while also providing a comparison to the amount exported to that same region (Table 0.1).

¹² Lux, *Historical Dictionary of the British Caribbean*, p. 159.

¹³ *Ibid.*, p. 159.

¹⁴ *Ibid.*, pp. 20-21.

¹⁵ Alan G. Jamieson 'War in the Leeward Islands: 1775-1783' (PhD dissertation, University of Oxford, 1981), p. 3.

Year	Imports from West Indies & South America	Exports to West Indies & South America
1755	---	---
1756	£4	---
1757	£4	---
1758	£1	---
1759	£93	£61
1760	£424	£120
1761	£491	£140
1762	£827	£460
1763	£1,036	£32
1764	£62	£7
1765	£85	£5
1766	£28	£5
1767	£34	£10
1768	£54	£12
1769	£103	£14
1770	£112	£11
1771	£47	£6
1772	£92	£9
1773	£65	£18
1774	£35	£14
1775	£59	£25
1776	£53	£20
1777	£49	£3
1778	£53	£7
1779	£16	£18
1780	£34	£127
1781	£33	£31
1782	£100	£229
1783	£29	£61
1784	£136	£31
1785	£61	£1
1786	£113	£45
1787	£71	£14
1788	£315	£28
1789	£251	£31
1790	£229	£39
1791	£198	£56
1792	£280	£107
1793	£308	£21
1794	£272	£54
1795	£385	£206
1796	£877	£1,041
1797	£1,078	£665
1798	£1,159	£1,264
1799	£1,390	£1,048
1800	£1,497	£479
1801	£2,577	£589
1802	£1,658	£285
1803	£355	£193
1804	£346	£312
1805	£736	£319
1806	£1,227	£1,796

Table 0.1 - £ in Thousands¹⁶

¹⁶ B.R. Mitchell, *British Historical Statistics* (Cambridge: Cambridge University Press, 1988).

At the commencement of the American War of Independence, exportation of goods from the West Indies was not immediately disturbed as that region did not feature prominently in the hostility. Once France formally entered the war on the side of the rebelling colonies, England realised their colonies were vulnerable to attack. Striking swiftly, England attacked and captured St Lucia from the French early in the war, although France's navy quickly responded by capturing Dominica, Grenada, Montserrat, St Kitts, St Vincent and Tobago. If it were not for Admiral Rodney's victory at the Battles of the Saintes in 1782, the French were poised to take the strategic island of Jamaica from the English as well. At the conclusion of the American War of Independence, the Treaty of Paris signed away a number of England's possessions including their hold on east Florida. France opted to take control of Newfoundland, while they restored a number of their West Indian conquests back to England. The latter recovered Dominica, Grenada, the Grenadines, St Vincent, St Kitts, Nevis and Montserrat.

Both during and after conflicts, some trade was maintained between the West Indies, North America and Europe. Tobacco, rice and cotton were exported from the former colonies, but sugar remained the principal export. In order to protect these valuable commodities plying the Atlantic waters, a system of convoys was organised by the Admiralty. The dates of the sailings were agreed between the Admiralty and the most influential London merchants and planters with an interest in the West India trade who knew how to maximise profits. To maximise the trade opportunities, convoys sailed from England in December or January, with a second in April. The first sailing was arranged 'so that merchants could reach the Leeward Islands and Jamaica in time to purchase the crop of sugar as soon as it was ready for shipment, and the second was for ships which were not ready in time to sail with the first.'¹⁷ To support the convoy efforts, the British maintained two island bases at Jamaica and Antigua. At each location, the navy constructed dockyards to ensure a reasonable degree of logistical support for visiting warships. Ships on the Jamaica station cruised between that island and the western Caribbean Sea as far south as Trinidad and as far north as Pensacola and the Mississippi River. Antigua was the seat of the Leeward Islands station. Ships on that station routinely cruised as far north as the Virgin Islands while also patrolling Barbados, St Lucia, Martinique and as far south as Grenada.

War in the West Indies from the beginning of the eighteenth century demanded naval activity and 'permanently introduced into naval life all the medical and other problems of

¹⁷ Crowhurst, 'The Admiralty and the Convoy System', pp. 165-166.

the tropics.’¹⁸ The overwhelming difficulty for visiting squadrons was their inability to prevent sickness. Ships were unhealthy in themselves; ideas of sanitation and cleanliness were rudimentary, sometimes non-existent, and victuals consisted mainly of salted meat and infested biscuits. ‘Add to this a debilitating foreign climate with a variety of unpleasant fevers, and it is easy to understand why sickness was the main enemy’ in the tropics.¹⁹ Fevers were not alone in causing the ill health of men in that climate. Sailors suffered from a number of other illnesses, mainly digestive ailments including dysentery and diarrhoea, as well as scurvy, ulcers, consumption, dropsy, rheumatism and ruptures. In a number of contemporary sources, the West Indies is prescribed a notorious reputation for being the eighteenth century seamen’s graveyard. Allison asserts that ‘crews of ships stationed in the Mediterranean and in tropical waters...suffered from fevers and fluxes’ so that ‘the West Indies had a particularly unenviable reputation in this respect.’²⁰ Disease was more prevalent in the West Indies; however it was not quite as dire as some historians suggest. Aside from unsystematically-gathered sickness data gathered on both the Jamaica and the Leeward Islands station, as yet no researcher has carried out a meticulous and methodical survey in order to quantify sickness and mortality figures in the West Indies.

To tackle issues of sickness in the fleet, the Commissioners for Taking Care of Sick and Wounded Seamen, more commonly known as the Sick and Hurt Board, were established in 1664 as a branch of the Admiralty. They were charged with the supervision and development of medical services both at home and abroad as well as, up until 1796, the care and exchange of prisoners-of-war.²¹ Initially the Board was not a permanent fixture; they were only convened during wartime with outstanding duties falling on the Navy Board during peacetime. Duties of the office grew significantly. In 1740 the Sick and Hurt Board was once again reassembled but this time they remained in Admiralty service for the remainder of the century even during peacetime.

The commissioners’ main responsibilities were the overseeing of sick quarters both at home and abroad, the management of agents at all major ports, the development and dissemination of surgeons’ regulations, liaising with independent medical bodies to ascertain the efficacy of certain medications and treatments, designing and implementing trials of medications and all other sundry duties directed by the Admiralty. When the sick quarters system fell out of favour with the Admiralty, the Sick and Hurt Board was integral

¹⁸ J.J. Keevil, *Medicine and the Navy 1200-1900*, vol 2 (Edinburgh: E&S Livingstone, 1958), p. 5.

¹⁹ A.J. Pack, *Nelson’s Blood – The Story of Naval Rum* (Havant: Kenneth Mason Publications Ltd, 1982), p. 20.

²⁰ R.S. Allison, *Sea Diseases: The Story of a Great Natural Experiment in Preventive Medicine in the Royal Navy* (London: John Bale Medical Publications Limited, 1943), pp. 93-94.

²¹ They handled the care and exchange of prisoners-of-war for both the navy and the army.

to developing hospitals, most famously the revolutionary Haslar hospital in Portsmouth and the equally innovatively-designed Stonehouse hospital in Plymouth. Through the Board's dedication and initiative, these institutions were transformed from places where invalids were sent until their discharge from service into facilities where men went to be healed and returned to active service.

At the beginning of the period of this survey, medicine and medical practices were rudimentary. Medicine had hardly advanced over the centuries, and it is 'easy to forget how small a proportion of Europe's adult population would have been healthy at any one time.'²² Stomach disorders were prevalent amongst the general population as was tuberculosis, suppurating ulcers and eczema. For naval sailors, these ailments were a concern; however they were commonly exposed to a number of other diseases. Sick and Hurt Board commissioners were not typically trained in medicine nor had they served on board His Majesty's ships. This meant the Board relied heavily on independent bodies for advice and guidance for all medical matters. These independent bodies, such as the Royal College of Physicians and the Society of Apothecaries, were only as good as the medical understanding of the day. Eighteenth century physicians were taught a number of beliefs and philosophies rooted in a traditional concept that the body and its illnesses were the result of the four humours, a belief which dated back to the Hippocratic *corpus*. The *corpus*, a collection of roughly sixty medical works, is credited to Hippocrates (c460-377 BC), although they were not necessarily penned by him.²³ Essentially, the *corpus* broadly explained health and illness in terms of the four humours. These humours consisted of blood, choler (yellow bile), phlegm and black bile and it was believed that each of these humours were responsible for their own individual life functions. Blood was the source of vitality, choler was the gastric juice which aided in digestion, phlegm constituted all colourless excretions from the body including sweat and tears and lastly black bile represented 'melancholy' and was responsible for tainting the other humours at times when illness struck. Each humour represented a visible and tangible occurrence of physical existence: temperature, colour and skin texture. 'Blood made the body hot and wet, choler hot and dry, phlegm cold and wet, and black bile produced cold and dry sensations.'²⁴ Each fluid also had a distinctive colour, 'blood being red, choler yellow, phlegm pale and melancholy dark.' If a person was in good health, it was believed the four humours existed in a harmonious balance with illness resulting from one of the humours building up or

²² Fiammetta Rocco, *The Miraculous Fever-Tree: The Cure that Changed the World* (London: HarperCollins, 2004), p. 31.

²³ Roy Porter, *Blood and Guts: A Short History of Medicine* (London: Penguin Books, 2002), p. 25.

²⁴ *Ibid.*, p. 26.

diminishing. For example, if the body produced too much blood it resulted in sanguineous disorders and fevers. A deficiency of blood, by contrast, meant reduced vitality and potentially resulted in fainting, coma or even death.²⁵

During the mid to late eighteenth century, there was a clear divergence away from Hippocratic teaching. This revolutionary period saw a growing preference for scientific experimentation and observation among a certain number of surgeons and physicians. The 'contagionist' theory gained momentum and offered a more accurate model of disease transmission, replacing, to some degree, the idea of miasmas or 'bad airs' which had coevolved with the humoral theory. According to miasmatic theory, decaying matter, such as dying plants or the fetid air in the hold of a ship, released harmful vapours that carried disease. Marsh and mangrove areas were considered particularly unhealthy in the West Indies 'because stagnant water and rotting vegetation gave rise to noxious miasma.'²⁶ The contagionist theory gradually replaced the idea of miasma, but not all at once and not where all diseases were concerned.²⁷ The medical revolution, also known as the Enlightenment, saw the waning of the humoral theory as well. Those surgeons and physicians who rejected Hippocratic teachings instead relied heavily on their own experiences with diseases and treatments. Variation in opinion on medical ideas and values among these men resulted in several diagnoses, treatments and remedies for a number of naval diseases in the eighteenth century. Clearly matters of the medical revolution are more complicated than is expressed here; this is a generalisation of the medical concepts at play covered by this thesis. It is merely intended to underline the complicated nature of medicine at the turn of the century and the evolution from theory and speculation to experimentation and observation.

Armed with such heterogeneous theories about how diseases were caused and how they affected seamen, the navy was always going to be at the mercy of tropical diseases. The Board was in the habit of altering their medical practices in an attempt to improve the level of care in order to preserve precious manpower. Regulations were modified to raise levels of cleanliness on board ships, medicines, which at one point were paid for by surgeons, were freely distributed in order to ensure they were reaching the seamen in need and by the end of the eighteenth century even the commissioners changed for the better. They

²⁵ Ibid., p. 27.

²⁶ Mark Harrison, *Disease and the Modern World: 1500 to the Present Day* (Cambridge: Polity Press, 2004), pp. 54-55.

²⁷ In some medical circles, the belief in miasmatic influences gained strength; the theory appealed more favourably to physicians and surgeons who were familiar with the distribution of yellow fever and malaria. Refer to discussion of both diseases in Chapter 2.

progressed from a largely administrative body into a more self-reliant organisation governed by medically-trained individuals who had served on board naval ships.

From the time of their permanent status as a unit within the Admiralty, the Sick and Hurt Board proved a dedicated and conscientious organisation which strove to improve the lives of seamen. The tasks of the office were numerous, particularly as they included the management of prisoners-of-war from both the army and navy during war time. Despite the Board continually achieving better standards of health, including the appointment of medically-trained men as commissioners, they suffered severely from inadequate accounting and operated in arrears for a number of years. To remedy the arrears, the Admiralty transferred responsibility for prisoners-of-war to the Transport Board in 1796. The transfer came a little too late and the Sick and Hurt Board was unable to clear their debt sufficiently to justify their continuation. The responsibility for caring for sick and wounded seamen was transferred to the more fiscally-responsible Transport Board and the Sick and Hurt Board was wound up in 1806.

Objectives and Structure

Despite a number of sources referring to the health of seamen in the West Indies, to date there has not been a comprehensive, systematic enquiry into the actuality of their situation. This is an oversight this thesis attempts to rectify. It aims to examine the degree to which naval seamen suffered from sickness in the West Indies and what was done improve their situation in the period 1770 to 1806. The dates were selected to encompass a time when the Sick and Hurt Board was operating on a permanent basis during both peace and war time. By 1770, the Board had enough experience at managing sickness on a global scale to be effective in suppressing disease. Over the next 36 years, they conducted the business of that office during major wars such as the War of American Independence and the French Revolutionary War. They also had benefit of a few years of peace during which time they focused on developing on shore facilities and the trial of experimental treatments. The end of the survey period coincides with the ceding of all Sick and Hurt Board duties to the Transport Board in 1806. Naval medicine continued to be a crucial aspect of English naval superiority, but the Admiralty no longer considered a dedicated branch a necessity.

This thesis aims to assemble the most accurate representation of seamen's health in the West Indies in the late eighteenth century through an investigation of the naval administration, diseases, medicines, hospital development and key personnel who influenced medical practices. Sickness and mortality figures are normally exaggerated in

contemporary sources. The most notorious sources ascribe high sickness and mortality figures to the dreaded scurvy. While scurvy did affect seamen, it was by no means the killer it is customarily portrayed as. The disease, rather than killing, 'effectively limited the time a squadron could stay at sea, and thus directly affected the efficiency of the service.'²⁸ Armed with that understanding, this thesis reveals which illnesses were most prevalent and the percentage of men who succumbed to disease. It demonstrates that only a small percentage of naval seamen were affected and that the majority of ships were generally healthy in the West Indies.

Certain subjects are omitted from the study. First, although the Board was responsible for the management of prisoners-of-war, that subject is not covered by this thesis. The sheer volume of letters and minute books concerning that branch of service is far too large to analyse properly in a study of this length. In any case that responsibility did not influence the health of seamen in the West Indies. Also absent from this study are remarks on victualling and the seamen's diet. Within the last year, two published works on Royal Naval victualling have been produced which examine the navy's system of procuring and distributing provisions.²⁹ Other works investigate the seamen's diet and the impact on health.³⁰ There is, therefore, no need to expound on that subject in this thesis.

The structure of the thesis is as follows: the Introduction surveys the history of the British West Indies and the profitableness of the colonies while also reviewing the methodology, sources and literature concerning the health of seamen in naval service. Chapter One gives the history of the Sick and Hurt Board in greater detail to identify how it was organised and how its responsibilities varied over time. Chapter Two focuses on the most common diseases suffered by seamen in tropical regions. In particular, the chapter discusses in detail the historical perspective on the causes and symptoms of the diseases. Chapter Three turns attention to a number of medicines and treatments, both successful and unsuccessful, which the navy utilised during the late eighteenth century.³¹ The chapter explores each treatment individually specifying how the most successful treatments were achieved at the

²⁸ N.A.M. Rodger, *The Wooden World: An Anatomy of the Georgian Navy* (London: HarperCollinsPublishers, 1986), p. 100.

²⁹ For detailed and comprehensive studies of the Victualling Board see Roger Knight and Martin Wilcox, *Sustaining the Fleet, 1793-1815: War, the British Navy and the Contractor State* (Woodbridge: Boydell & Brewer, 2010) and Janet MacDonald, *The British Navy's Victualling Board: Management Competence and Incompetence* (Woodbridge: Boydell & Brewer, 2010).

³⁰ See J. Watt, E.J. Freeman and W.F. Bynum (eds.), *Starving Sailors: The Influence of Nutrition upon Naval and Maritime History* (London: National Maritime Museum, 1981); Janet Macdonald *Feeding Nelson's Navy: The True Story of Food at Sea in the Georgian Era* (London: Chatham, 2006).

³¹ The medicines and cures described in Chapter 3 were selected due to their appearance in the Sick and Hurt Board's correspondence. There are some obvious omissions which are briefly touched upon in that Chapter.

insistence of observant surgeons and physicians serving in the tropics. Chapter Four contains original statistics collected through the systematic sampling of data from ships' muster books to produce an accurate representation of disease and mortality amongst seamen in the West Indies. Samples were taken in 1773, 1778, 1783, 1788, 1790, 1793, 1798 and 1803 meaning statistics were gathered every five years (with the exception being 1790)³². Choosing these dates ensured an equal number of samples were taken during both war and peace years in order to be able to draw comparisons between them. Chapter Five examines the handful of men who influenced naval medicine in this period. These notable men include James Lind, Admiral Sir George Rodney, Gilbert Blane, Leonard Gillespie and Thomas Trotter. It also contains case studies taken from naval surgeons' journals which provide a unique perspective into their role on board ships in the West Indies. Chapter Six reviews hospital development in the West Indies and the navy's growing reliance on them to serve as convalescing facilities for the sick of the squadron. The chapter uses correspondence from commanders-in-chief describing the precarious nature of the sick quarters system to house men on shore in order to convince the Admiralty that hospitals were the preferred method for lodging men. Chapter Seven is a case study focusing on the erection of the naval hospital at English Harbour, Antigua. This hospital was selected as the case study due to it being designed, built and operated within the survey period.

Opting for this particular layout allows the thesis to explore a number of historical disciplines. The basis of the study is maritime history; however medical and social history feature prominently in the study. All of these are underpinned by continuing military, political and economic themes crucial to the navy's presence in the West Indies. Understanding the relationship between the disciplines creates a more thorough and comprehensive study, one which has been generally overlooked by historians.

Sources

Aside from a study of the navy's medical administration, there has been no study of the health of British seamen in the eighteenth century. Historians cite the lack of primary material generated by members of the lower decks, which include the lack of surgeons' journals for the period. While these are valid points and the subject may appear difficult to research, there are, in fact, a multitude of superb sources available. In particular the

³² The year 1790 is the only date that breaks away from the five-year sampling method employed in this thesis. It was selected because it was a year of peace time meaning an equal number of peace and war years were sampled. Also, it is generally accepted that the 1770s and 1780s were relatively healthy and virtually free from fever outbreaks. By selecting the year 1790, it circumvents those 'healthier' decades and therefore more accurately represents the overall morbidity and mortality percentages during the last quarter of the eighteenth century.

primary material relating to operations of the Sick and Hurt Board is abundant. The Board's papers include bound volumes of correspondence with the Board of Admiralty which are held at the National Maritime Museum (NMM). The volumes exist from 1740 until 1806. The Sick and Hurt Board in-letters from the Admiralty and are seemingly complete from 1740 to 1806. Sick and Hurt Board out-letters to the Admiralty suffer from a gap in sequence between 1765 and 1794 when the records are supplemented by incomplete folders of loose letters.³³ This correspondence relates to the operations of the Sick and Hurt Board and contains frequent debates about its responsibilities in the West Indies. Another advantage to this particular resource is that the original third-party letters alluded to in the text of the correspondence are often still enclosed, therefore providing an additional primary source. Also located at the NMM are Navy Board letters which contain instructions from the Admiralty concerning the erection of naval hospitals, a collection of personal papers belonging to Sir Gilbert Blane, a commissioner on the Sick and Hurt Board between 1795 and 1802 and personal papers belonging to captains and admirals who served in the West Indies during the survey period.

The majority of Admiralty papers are located at The National Archives (TNA) including correspondence from commanders-in-chief on all stations; for the purposes of this study that involves letters sent from both the Jamaica and the Leeward Islands stations (ADM 1). At TNA, too, are duplicate records of the Sick and Hurt Board in and out correspondence (ADM 97 and ADM 98) as well as the Board's minutes which exist for the entire survey period (ADM 99). Late in the eighteenth century, naval surgeons began to submit journals with their observations to the Admiralty. Only a handful still exist at TNA whose dates coincide with the survey period and whose surgeons spent time in the West Indies; in fact they number less than twenty (ADM 101). As there was no organised way of recording the journals, each of them provides a distinct insight and explores diverse ideas on treating sick men. In order to carry out the statistical survey on the health of British seamen in the West Indies, the use of ships' muster books is integral (ADM 36). These are also found at TNA and their survival rate is surprisingly good, therefore making them a valuable resource to complete the comprehensive survey. A less numerous but equally useful source to assess sickness and mortality are hospital muster books held at TNA (ADM 102) although they are only available from the 1790s onward.

³³ In-letters are in series NMM ADM/E, out-letters are in series ADM/F and the folders of loose out-letters are in series ADM/FP.

Records at the Royal Naval Museum Library (RNML) contain a number of items related to naval medicine. These include the papers of Thomas Corbett, Secretary of the Admiralty, which outline the history, members and instructions for the Sick and Hurt Board from its inception and throughout his time in office (MSS 121). There are four volumes of letter books kept by Admiral John Ford while at Jamaica which give the perspective of a commander-in-chief operating in the West Indies. His correspondence contains letters to the Admiralty, Sick and Hurt Board, the victualling agent on the island and the hospital's surgeon all of which demonstrate how thorough a commander had to be to ensure an acceptable standard of living for seamen.

Primary medical records, aside from those expressly kept by the navy, are also valuable for contextualising the state of health and medical knowledge in the eighteenth century. As the principal repository for medical material in the UK, the Wellcome Library (WL) contains an extensive collection of useful items. The WL houses publications by a number of naval surgeons on topics such as the diagnosis of diseases and the production of efficacious medicines. Most notably there are booklets by James Lind, Gilbert Blane, Thomas Trotter, Elliot Arthy, Leonard Gillespie and Robert Robertson all discussing the general care of naval seamen. There are pamphlets by some lesser known naval surgeons such as James Litle who wrote about seamen suffering from ulcers, Malcolm Flemying who spoke highly of the effects of Dr James's Fever Powder, and Frederick Thomson a naval surgeon who penned an essay on scurvy. Publications were not only limited to disease and medicine. There are a number of publications that discuss the practice of surgery and analysis of injuries; for example, John Atkins, a naval surgeon, published his observations on surgery in order to promote the treatment of afflictions such as fractures and ruptures.

Literature

There are very few secondary sources which refer to naval medicine. Those that are available are typically administrative in nature. Most well-known is the four volume series of *Medicine and the Navy* published between 1957 and 1963 which is often cited but seldom updated.³⁴ Following the publication of those volumes, focus on naval medicine seems to have receded. Naval historians have referred to health and the Sick and Hurt Board in passing, but no in-depth study has replaced *Medicine and the Navy*. Notable works which contain brief descriptions of naval medicine include the continuing series of naval history

³⁴ J.J. Keevil, *Medicine and the Navy 1200-1900*, vol 1 (Edinburgh: E&S Livingstone, 1957). J.J. Keevil, *Medicine and the Navy 1200-1900*, vol 2 (Edinburgh: E&S Livingstone, 1958). Christopher Lloyd and Jack L.S. Coulter, *Medicine and the Navy 1200-1900*, vol 3 (Edinburgh: E&S Livingstone, 1961). Christopher Lloyd and Jack L.S. Coulter, *Medicine and the Navy 1200-1900*, vol 4 (Edinburgh: E&S Livingstone, 1963).

books written by N.A.M. Rodger. His *The Wooden World: An Anatomy of the Georgian Navy* and *The Command of the Ocean: A Naval History of Britain, 1649-1815* discuss life on board ships-of-the-line as well as investigating the administration of the Sick and Hurt Board.³⁵ Along the same lines is Daniel A. Baugh's *British Naval Administration in the Age of Walpole* which devotes a section to the history and duties of the Sick and Hurt Board through their early years. However he pays very little attention to the health of seamen.³⁶ More specific to the West Indies region is Duncan Crewe's published work based on his doctoral thesis entitled *Yellow Jack and the Worm: British Naval Administration in the West Indies, 1739-1748*.³⁷ As with the other volumes, Crewe's work focuses mainly on administration and does little to describe the condition of the men themselves. Michael Duffy has published a number of works on the navy in the eighteenth century, and even presents mortality figures in *Soldiers, Sugar and Seapower: the British Expeditions to the West Indies and the War Against Revolutionary France*.³⁸ His figures are combined with the mortality of the army and it is therefore difficult to gauge the hardships suffered by the navy alone. For making comparisons with the British army's experiences in the West Indies, Roger Norman Buckley's *The British Army in the West Indies: Society and the Military in the Revolutionary Age* and Sir John William Fortescue's multi-volume work entitled *A History of the British Army* are informative. One of the only historians to focus solely on the Sick and Hurt Board is P.K. Crimmin who has published a number of articles dealing with its commissioners and duties of the office. In her assessment of the Board during the second half of the eighteenth century she considers that, 'through trial and error and only slowly, naval health improved.'³⁹ Crimmin offers no statistics to validate her claim, instead relying heavily on figures quoted in the Board's correspondence with the Admiralty and naval surgeons.

Books published by the eminent social and medical historian, Roy Porter, help to contextualise the state of health amongst the general masses in England. His unique blend of the two disciplines, including commentary on the Royal Navy, demonstrates that the organisation's medical practices were on par with the rest of Europe. In terms of this thesis, Porter's more useful books include *Disease, Medicine and Society in England, 1550-1860*, *Bodies Politic: Disease, Death and Doctors in Britain, 1650-1900* and *Blood and Guts: A Short*

³⁵ Rodger, *The Wooden World*: N.A.M. Rodger, *The Command of the Ocean: A Naval History of Britain, 1649-1815* (London: Penguin, 2004).

³⁶ Daniel A. Baugh, *British Naval Administration in the Age of Walpole* (Princeton: Princeton University Press, 1965).

³⁷ Duncan Crewe, *Yellow Jack and the Worm: British Naval Administration in the West Indies, 1739-1748* (Liverpool: Liverpool University Press, 1993).

³⁸ Michael Duffy, *Soldiers, Sugar and Seapower: the British Expeditions to the West Indies and the War Against Revolutionary France* (Oxford: Clarendon Press, 1987).

³⁹ P.K. Crimmin, 'The Sick and Hurt Board and the Health of Seamen c1700-1806' in *Journal for Maritime Research*, vol 1 (December 1999).

History of Medicine.⁴⁰ J.R. McNeill's work, *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620-1914* demonstrates very well the changing ecology of the West Indies and the resulting surge in fever epidemics and how they distressed the local population and the islands' new arrivals. More recently, Mark Harrison has contributed a number of works on the history of medicine and the military. His *Disease and the Modern World: 1500 to the Present Day* provides an excellent overview of the evolution of diseases and health, but it is his more detailed works on military health that have been more valuable for the purposes of this thesis. Harrison's *War, Medicine and Modernity* and to a greater extent his *Medicine in an Age of Commerce and Empire: Britain and its Tropical Colonies, 1660-1830* demonstrate how health varied from region to region and serves as the basis for comparison between the West Indies, India and Africa.⁴¹ Another medical work that has been integral to this thesis is *The Cambridge Historical Dictionary of Disease* which not only offers thorough descriptions of how society viewed diseases in pre-Victorian England, but also explores their causes and conventional cures.⁴²

During the period this thesis covers, there was significant reforms to medicine taking place in Britain (commonly referred to as the Enlightenment), therefore a number of medical histories were consulted in order to gauge the extent of the transformation. Some of the more knowledgeable works include Pratik Chakrabarti's *Materials and Medicine: Trade, Conquest and Therapeutics in the Eighteenth Century* which explores the use of local resources obtained within the British Empire that were efficacious in the treatment of diseases. Likewise, Christopher Lawrence's work 'Disciplining Disease: Scurvy, the Navy, and Imperial Expansion 1750-1825' demonstrates the Royal Navy's desire for reforms in order to treat diseases effectively during the development of the Britain's overseas territories. For more concentrated studies on specific aspects of the Enlightenment, Irvine Loudon book *Medical Care and the General Practitioner, 1750-1850* demonstrates how the role of surgeons was changing during this period. Lisa Rosner's work, *Medical Education in the Age of Improvement: Edinburgh Students and Apprentices, 1760-1826* has a similar theme, although hers focuses on the emerging Scottish Enlightenment through its universities and hospitals. On a similar note, Susan Lawrence's *Charitable Knowledge: Hospital Pupils and Practitioners in Eighteenth Century London* establishes London as a centre for medical reformation through its

⁴⁰ Roy Porter, *Disease, Medicine and Society in England, 1550-1860* (Cambridge: Cambridge University Press, 1992); *Bodies Politic: Disease, Death and Doctors in Britain, 1650-1900* (Ithaca: Cornell University Press, 2001); *Blood & Guts*.

⁴¹ Harrison, *Disease and the Modern World: 1500 to the Present Day* (Cambridge: Polity Press, 2004); *Medicine in an Age of Commerce and Empire: Britain and its Tropical Colonies, 1660-1830* (Oxford: Oxford University Press, 2010); Roger Cooter, Mark Harrison and Steve Sturdy (eds.), *War, Medicine and Modernity* (Stroud: Sutton, 1998).

⁴² Kenneth F. Kiple (ed.), *The Cambridge Historical Dictionary of Disease* (Cambridge, Cambridge University Press, 2003).

various hospitals which served as ‘closed’ environments for experimentation and observation. Ulrich Tröhler’s PhD thesis examines experimentation and observation in hospitals, however he casts a wider net to explore more ‘closed’ environments. Specifically he targets the army and navy for his study since the groups of men remained generally consistent in both military branches, therefore their surgeons were able to carry out long-term observations.

Because *Medicine and the Navy* was published nearly 60 years ago, there have been recent attempts to provide a modern view of naval medicine with particular attention paid to the Enlightenment. Multi-author works edited by Geoffrey L. Hudson and David Boyd Haycock and Sally Archer give a good indication that interest in the topic is rekindling. Hudson’s book, which focuses on naval and military history, includes essays on the British Army in both the West Indies during the Seven Years’ War and the American War of Independence as well as one focusing on naval medicine contributed by P.K. Crimmin.⁴³ The Haycock and Archer book, entitled *Health & Medicine at Sea, 1700-1900*, concentrates solely on naval medicine with the contributors concentrating on the role of naval surgeons, surgery in the navy, the development of the Sick and Hurt Board and the health of naval personnel in West Africa.⁴⁴ While the recent works provide new and original material on naval medicine, they have only just begun to scratch the surface. This thesis provides a much needed contribution to the subject matter. It establishes not only the navy’s system of healthcare, but just how that system of healthcare affected thousands of men stationed in England’s lucrative tropical, and sometimes deadly, West Indies colonies.

Notes on terms

This study is based on a large amount of primary material written in the eighteenth century. Contemporary spelling, abbreviation, punctuation and capitalisation have been modernised. For example, it was typical in the eighteenth century to use ‘expençe’ and ‘Barbadoes’. These are replaced in the text of the thesis with ‘expense’ and ‘Barbados’. The only instances where spelling or abbreviation remain in their original format when they are specifically relevant in the context of the thesis. When direct quotations have been used and words have been edited out, they are indicated with ‘...’; where words have been inserted to put the quote into context, they are indicated with ‘[...]’. Only particularly obscure or outdated nautical and medical terms have been explained within this thesis.

⁴³ Geoffrey L. Hudson, (ed.), *British Military and Naval Medicine, 1600-1830* (Amsterdam: Rodopi Press, 2007).

⁴⁴ David Boyd Haycock and Sally Archer, (eds.), *Health & Medicine at Sea, 1700-1900* (Woodbridge: The Boydell Press, 2009).

Chapter 1

Sick and Hurt Board: History and Responsibilities

Sickness, job hazards and war-wounded created a serious drain on manpower in the Royal Navy. The Admiralty knew firsthand the benefits of sustaining healthy crews, for those crews were far more valuable than fleets abounding with sick men operating at half-strength. Worse were dead men who were literally a 'dead loss' to the service and very difficult to replace.¹ Once the navy was required to send ships to protect British interests outside European waters, it was inevitable that illness would be a by-product through exposure to new climates and diseases as well as the limited availability of fresh provisions. In order to better defend Britain's foreign territories it was necessary for the navy to improve the system for maintaining seamen's health on board their ships. That was certainly no easy task and in fact it took the navy a great deal of time to achieve a favourable work environment for seamen. In 1693, the 'allied main fleet barely managed to remain at sea a fortnight.'² A mere sixty-five years later, Admiral Hawke orchestrated the blockade of Brest, during which time he and his men were able to stay at sea continually for six months. In order to facilitate this improvement in health, the Admiralty employed a dedicated medical branch named the 'Commissioners for Taking Care of Sick and Wounded Seamen', more commonly referred to as the 'Sick and Hurt Board'. Initially the commissioners were convened on a temporary basis. However, when it became apparent that medical services were a full time concern, the Sick and Hurt Board became a permanent body in the 1740s.

The chief function of the Sick and Hurt Board was the supervision of all things medical. Initially, this was not an unmanageable task, especially when the main fleet was based in and around European waters and seamen numbered less than 13,000.³ When the Government established a strong foothold in foreign waters, the Admiralty and Sick and Hurt Board's jobs became more complex. Not only was it necessary to send men halfway around the world to protect trade interests, it also became essential to organise naval dockyards as well as contracting with individuals to provide food, medication and on shore accommodation for seamen. In particular, the Sick and Hurt Board focused their attention

¹ P.K. Crimmin, 'The Sick and Hurt Board and the health of seamen c.1700-1806' in *Journal for Maritime Research*, vol 1 (December 1999), p. 54.

² N.A.M. Rodger, *The Command of the Ocean: A Naval History of Britain, 1649-1815* (London: Penguin Books, 2004), p. 291.

³ According to Rodger, figures from the time of the Sick and Hurt Board's establishment in 1664 cannot be compiled with any degree of certainty. Therefore the number cited in the text refers to the first ascertainable manpower figure which is 1688. Rodger, *The Command of the Ocean*, p. 636.

on North America and the West Indies. Throughout the study period (1770 to 1806), it is clear that their responsibilities were generally consistent, although towards the end of the century the Board endured significant administrative changes which altered its operations. Initially the Board was largely made up of bureaucrats rather than men with medical training and early on they relied heavily on independent medical bodies to guide them in providing directions for naval surgeons.⁴ Once the Admiralty appreciated the Board would benefit greatly from commissioners being drawn from the medical service, the Board began to wean itself off those independent bodies and became practically self-reliant. From that point forward, changes which enabled seamen to remain healthy over long periods of time, even in tropical climates, were championed by this new breed of commissioner. Unfortunately, just when the Board really began to gain momentum, long-standing issues with financial arrears proved excessive prompting the Admiralty to institute serious cutbacks. In 1796 the Board lost their management of prisoners-of-war to the Transport Board and the Board itself was eventually absorbed into that same branch in 1806.⁵

The permanency of the Sick and Hurt Board from the mid-eighteenth century was one facet of a larger awareness of naval medicine and seamen's health. In order to defend the growing British Empire, the navy was forced to stretch its resources further and further. Finding an adequate number of seamen to man the ships, particularly in war time, was often difficult. The most critical period was during the initial mobilisation 'because the enormous number of seamen required to launch a powerful wartime fleet could not be recruited quickly enough.'⁶ This was most evident during the first few months of the Seven Years' War when a shortage of men was exacerbated by losses from disease and desertion. During that conflict, a large number of British sailors were ordered to the West Indies which led to an extraordinary loss of life from diseases such as yellow fever, malaria and dysentery, while other diseases such as ulcers and ruptures debilitated men so severely that they were unable to carry out their shipboard duties.⁷ In order to reduce the weakening in manpower from disease and desertion, the Admiralty and the Sick and Hurt Board devoted a great deal of attention to preserving lives; particularly with regards to enhancing medical care in the navy. From the outbreak of the Seven Years' War, the navy took the care of seamen more seriously and endeavoured to do what it could to reduce the effects diseases had on the fleet.

⁴ There were medical commissioners appointed during the Seven Years' War, beginning in 1756 when the Admiralty selected Dr James Maxwell, followed by others during the war.

⁵ Crimmin, 'The Sick and Hurt Board', p. 49.

⁶ Stephen F. Gradish, *The Manning of the British Navy during the Seven Years' War* (London: Royal Historical Society, 1980), p. 1.

⁷ Pratik Chakrabarti, *Materials and Medicine: Trade, Conquest and Therapeutics in the Eighteenth Century*, (Manchester: Manchester University Press, 2010), p. 52.

Sick and Hurt Board: Pre-1740

In 1664, when the Second Anglo-Dutch war was on the verge of commencing, King Charles II created the Sick and Hurt Board and appointed four commissioners to serve under the direction of the Navy Board. The most notable appointee as commissioner was John Evelyn, who later became a close friend of Samuel Pepys.⁸ The commissioners were responsible for all aspects of the care of sick and wounded seamen, each earning a salary of £300 per annum. At that time, the commissioners' duties included placing sick and wounded men into hospital and ensuring that they had the benefit of physicians or surgeons. When no hospital was available, the commissioners found alternative accommodation on the cheapest terms. They were also instructed to place a clerk or deputy in each principal British port to keep an account of sick put on shore and to provide them with all necessaries. Following any military engagement, one commissioner was ordered down to the port where the wounded were landed in order to facilitate their care. Lastly, they had the power to distribute charity money to widows, children and parents of those seamen slain in His Majesty's service who were in need of relief. To enable the commissioners to carry out their duties, they were allocated £150 per annum to pay for the services of a clerk, a doorkeeper, a messenger, firewood for their office, candles, pens, ink and paper.⁹ According to N.A.M. Rodger, the Board at that time 'was devoted and efficient – Evelyn's accounting system aroused the admiration even of so rigorous a judge as Pepys.'¹⁰

When war concluded in 1667, warrants for the commissioners ceased and the Board was dissolved. Their duties during peacetime were conducted by John Pearce, Surgeon General of the Fleet, who had been hired to serve with the main fleet and supervise surgeons and hospital ships the same year the Board was established.¹¹ When the Third Anglo-Dutch war broke out in 1672, the Sick and Hurt Board was formed again. Henceforward, the commissioners were required to transmit to the Navy Office a regular account of all seamen and soldiers set ashore, the date they entered care and how many days they spent in sick quarters. By 1690 they were also ordered to send a weekly account to the Admiralty outlining the state of sick men for the two preceding weeks in all ports, 'specifying in the most distinct manner their distempers, number, entries, discharges, whether belonging to

⁸ The other three members to serve with Evelyn were Sir William D'Oyly, Sir Thomas Clifford and Colonel Bullen Reymes.

⁹ AL, MSS-121, Papers of Thomas Corbett, Secretary of the Admiralty.

¹⁰ Rodger, *The Command of the Ocean*, p. 104.

¹¹ *Ibid.*, p. 104.

the King's ships or his allies.¹² In pursuance of an order laid before the King in Council in 1695, the management of the sick and wounded service and its commissioners transferred away from the Crown and became the Admiralty's responsibility which was meant to afford a more efficient service.¹³ The temporary assemblage of commissioners continued for three more years until the Board was once again dissolved with their functions transferring to the Register Office.¹⁴

When the war broke out in 1702, the Admiralty re-established the Sick and Hurt Board, appointing Henry Lee, Philip Herbert Esq, Doctor Richard Adams, Doctor William Sherard, and Doctor Charles Morley as commissioners. In addition to the Board's duties during the seventeenth century, they were also assigned the management of all prisoners-of-war. For their services, Mr Lee, the senior commissioner, was allocated a salary of £500 per annum with the remainder of the commissioners paid £300. Sherard served for roughly one year and following his departure, it was decided there was no need for a replacement. Instead, Adams and Morley divided his salary between them. This financial arrangement was reached largely 'in consideration...of their great trouble in viewing the surgeons' chests.'¹⁵ To further add to their numerous duties, one of the commissioners was appointed to regularly visit ports where they had officers and agents in order to inspect their accounts and muster books to probe for potential fraud and mismanagement.

At the Peace of Utrecht in 1713 the number of commissioners was reduced to two: Mr Herbert and Dr Adams. The Admiralty decided in 1715 that the management of that Board would be placed under the care of two commissioners at the Navy Board rather than retain Herbert and Adams. The Sick and Hurt Board was once again dissolved. Within a year, the two Navy Board commissioners indicated they were unable to manage the business themselves and an additional commissioner, Mr Edisbury, was added in order to assist with tasks in the office. The number of Navy Board commissioners tending to the medical service was eventually reduced to one during the prolonged period of peace and this arrangement continued until 1740.

Sick and Hurt Board: Post 1740

In 1740, with the War of Jenkins' Ear raging, a memorial was sent from the Admiralty to the Lords Justices setting forth that the business of tending to the medical needs of seamen

¹² AL, MSS-121, Papers of Thomas Corbett, Secretary of the Admiralty.

¹³ Ibid.

¹⁴ Christopher Lloyd and Jack L.S. Coulter, *Medicine and the Navy 1200-1900*, vol 3 (Edinburgh: E&S Livingston, 1961), p. 3.

¹⁵ AL, MSS-121, Papers of Thomas Corbett, Secretary of the Admiralty.

had increased tremendously and that the Navy Board commissioners were no longer able to cope with it. The Sick and Hurt Board was reconstituted once again taking the current commissioner from the Navy Board and adding William Bell and Nathaniel Hills, followed by a fourth commissioner in 1745.¹⁶ From that point forward, the Board remained a permanent fixture in the organisation of the navy through to the end of the century, although the number of active commissioners would vary; customarily four or five during wartime reduced to two during peace time. For example, on the eve of the Seven Years War in 1755, the Board was increased to four members while at its conclusion, the number was reduced to two.¹⁷ In 1779 that number was raised to five in order to cope with the American War of Independence. At that point, there were only four clerks to tackle the numerous duties of the office as well as a number of employees who reported to the commissioners - who included the surgeons and agents, their messenger and the portable soup maker.¹⁸

Given the small number of commissioners on the Sick and Hurt Board, it is not difficult to assume they were too few as to be able to visit ports around the British coastline. It was necessary to employ agents, usually surgeons, to oversee the duties of the office at various ports. Prior to 1740, agents were located at the following ports: Deal, Dover, Fareham, Gosport and Portsmouth, Plymouth, Rochester, Yarmouth, Guernsey, Jersey and Kinsale.¹⁹ Once the Board became permanent, the number of ports where their agents were stationed expanded, extending to Bristol, Berwick, Exeter, Falmouth, Glasgow, Hull, North Shields, Saltash and Weymouth within the British Isles; abroad agents were initially stationed at Gibraltar and Port Mahon but this grew to include a number of North American and Mediterranean ports. These local agents were required to secure sick quarters for men sent ashore for the recovery of their health. They were also expected to procure any necessary medicines and food. Bills for the aforementioned work were verified and sent off to the Sick and Hurt office in London for payment.

Aside from overseeing agents, the commissioners were expected to supply printed regulations to captains and surgeons of the fleet, the first of which appeared in 1731, outlining the daily care of sick men.²⁰ By 1740 the list of regulations numbered over 30 specific items and included directions for surgeons to have their medicine chests surveyed

¹⁶ Ibid.

¹⁷ Lloyd and Coulter, *Medicine and the Navy*, p. 4. The commissioners were J. Bell, H. Tom, J. Maxwell and L. Guiger.

¹⁸ Ibid., p. 4. The other commissioners assigned to the Board at that time were Nathaniel Hills, William Farquharson, Vincent Corbett and Robert Lulman.

¹⁹ Crimmin, 'The Sick and Hurt Board', p. 51.

²⁰ Appendix 2 contains an edition of the 'Instructions for Navy Surgeons' dating from 1800.

at least once every twelve months, an order to inspect all recruits brought on board for infections and contagious diseases, and an order to draw up a list of all men who were sick or hurt who were entitled to relief from the Chatham Chest. It was further outlined that it was the surgeons' responsibility to ensure the lower decks were kept clean and dry, which meant the fumigation of bedding and clothes belonging to crew. Surgeons were to regulate the diet of sick men which meant they had to have a very attentive relationship with pursers. The commissioners also requested surgeons keep sick men on board rather than sending them to sick quarters or hospital, especially when in tropical climates, to encourage the recovery of the sick and to keep costs down. This regulation was a double-edged sword in that by keeping the men on board, the Admiralty was able to reduce the sick quarters expenditure and reduce desertion, although keeping infectious men confined in close quarters on board their ships heightened the possibility of spreading disease. Surgeons' instructions were particularly crucial during times of war when manpower was exceedingly scarce. If the regulations were adhered to, ships stood a greater chance of retaining a sizeable portion of the crew. As stated previously, the Admiralty as well as the Sick and Hurt Board focused on the wastage of manpower, which meant naval medicine and seamen's health became much more vital.

Towards the end of the century, the Board underwent a noteworthy transition that saw their focus shift slightly away from administrative duties and more towards medical duties. Historically, the commissioners had always been administrative men who had served on various other boards and had no knowledge or proficiency in medicine. By the mid-1790s that all changed. From 1793 the Board was made up of a mixture of lay men as well as trained naval doctors who used their personal experience and education to set in motion a variety of changes to the methods by which the sick and hurt were handled. In 1796, the Board consisted of Dr John Johnstone, Dr Robert Blair, Sir William Gibbons, Dr John Weir and Sir Gilbert Blane.²¹ Lloyd and Coulter accurately described this transitional period and the introduction of medical men to the Board:

For almost the first time in the long history of the Board important innovations were made at the instigation of the Board, and not, as hitherto, as a result of the advice of its subordinates...In 1796 new regulations were drawn up for the use of surgeons, which Blane took personal care to see properly implemented²²

²¹ Lloyd and Coulter, *Medicine and the Navy*, p. 4. Blane was the former physician to Admiral Sir George Rodney's squadron in the West Indies during the American War of Independence. He and Rodney are both discussed in greater detail in Chapter 5.

²² *Ibid.*, p. 5.

It was at this stage that the Board became proactive rather than reactive to requests for changes in standard naval medicine practices. Blane, in particular, had served in the West Indies, an area of the world where the Royal Navy was hit hardest by disease. In his view, it was better to practice preventative care rather than dealing with medical issues once they had taken hold on board. He felt the Board's history of reacting to epidemics was an incompetent way to keep men healthy. Customarily, the Board decided whether or not certain medicines should be supplied to the ships as a reaction to epidemics amongst the fleet. With the coming of this new Board, the commissioners were proactive in deciding what medicines should be standard issue on all ships or on single voyages to prevent disease rather than treat it. This new Board was also responsible for the regulation of naval surgeons and the management of naval hospitals. Stricter guidelines meant surgeons, physicians, mates and dispensers were held more accountable for the daily routine of caring for the sick.

The Sick and Hurt Board reached a turning point in 1796, which was predominantly instigated by the removal of duties pertaining to prisoners-of-war in that year. Once free of the duties attached to the care of prisoners-of-war, the commissioners were able to enhance their attention to caring for sick seamen for, which, at that particular time, they were fully qualified to do. The Admiralty advised the Board that their duties were now limited to medical issues such as the care of sick on board all of His Majesty's ships in commission, the care of those sent to hospital and sick quarters, the superintendence of those hospitals and sick quarters, the superintendence of medicines and necessaries supplied for the use of sick afloat and ashore, the examination of all surgeons for the navy and the appointment of surgeons and surgeon's mates subject to the approval of the Admiralty.²³ For the commissioners serving at the time, these duties were achievable as they were able to utilise their own understanding and experience. This also meant the commissioners were not wholly reliant on the input of external bodies such as the Royal College of Physicians and physicians from Guys and St Thomas's hospitals. With their adjusted responsibilities, the Board set about a revision of regulations for surgeons afloat which was distributed to surgeons in 1796 and 1797.²⁴ One of the most notable of these revisions was the standard issue of lemon juice for the treatment of scurvy, which had been approved for use in August 1795.

Aside from revising the surgeons' regulations, the Board re-outlined their objectives to the Admiralty. In a letter they wrote to the Admiralty they indicated that they saw their

²³ NMM, ADM/E/45, Admiralty to Sick and Hurt, 13 October 1795.

²⁴ NMM, ADM/F/27, Sick and Hurt to Admiralty, 21 November 1796.

primary role as the prevention of disease, especially in new recruits. They proposed examining, and if necessary, rejecting candidates who were not in reasonable health or posed a threat to the remainder of the fleet. Also in their letter they asserted their desire to superintend 'the preparation and issuing of the medical stores' which would curtail the monopoly held by the Society of Apothecaries. Thirdly, they proposed that both provisions and clothing on board all ships should be inspected by surgeons and not just by the pursers. Finally, the Board requested they have the sole authority to examine all candidates who wished to be naval surgeons or surgeons' mates, essentially because they had formerly served in a medical capacity on board ships and would be best qualified to judge the aptitude of candidates. However, they conceded, that should there be an internal difference of opinion on any medical matter, they would refer to the Company of Surgeons and the Royal College of Physicians for a final decision.²⁵

Soon after their proposals reached their Admiralty, the Sick and Hurt Board was granted the authority to appoint to 'all future vacancies of surgeons and surgeons mates, instead of the principal officers and commissioners of His Majesty's Navy.'²⁶ As a further testament to the commitment of the Board's new style of carrying out the duties of their office, the five commissioners resolved to meet every day rather than continue meeting three days per week (which had been customary). The basis for the change was due to the sheer volume of work they took on as well as the large arrears of accounts, the clearance of which 'would tend much to the furtherance of the public service.'²⁷

Since early in the eighteenth century, the Board had been notoriously behind on their accounts. According to N.A.M. Rodger, the Board's finances were more precarious than those of the rest of the naval administration. They had no course or bill system, but paid cash for everything, when they could get it.²⁸ A decision was handed down in 1796 ordering the care of prisoners-of-war away from the Sick and Hurt Board which was transferred to the Transport Board. Although the move may have brought a certain degree of relief to the commissioners, it was not completely welcomed. The arrears belonging to that branch were not forwarded to the Transport Board but the clerks who were employed to clear them were.²⁹

²⁵ Lloyd and Coulter, *Medicine and the Navy*, pp. 8-9.

²⁶ TNA, ADM 99/51, Sick and Hurt Minutes, 19 August 1796.

²⁷ TNA, ADM 99/52, Sick and Hurt Minutes, 31 January 1800.

²⁸ Rodger, *The Command of the Ocean*, p. 104.

²⁹ NMM, ADM/FP/42, Sick and Hurt to Admiralty, 1799.

The clerks remaining in the Sick and Hurt office attempted to catch up with the arrears, yet made little headway. In 1799, the Board forwarded a complaint to the Admiralty about their predicament. Not only were the commissioners displeased with the removal of some of their clerks, they wanted additional employees due to the rise in their responsibilities for the care of sick seamen. They claimed:

this new business alone is now of such extent as nearly to require the whole attention of the present establishment of the department (we view however with heartfelt satisfaction the benefits arising from the supplies issued by this office, and that general regulations adopted for the preservation of health in His Majesty's ships which has created so much new business in this department)³⁰

Additionally, there were 329 accounts to be audited, amounting to £1,271,908-13s-5d, a great part of which were, they claimed, of a very intricate and complex nature. They required the utmost care and circumspection in order to detect the various attempts made to introduce improper or exaggerated charges into public accounts and the current number of clerks would not suffice.³¹ If the Board was to come up to date with their accounts, they demanded financial encouragement for their clerks. The salary paid to clerks in other departments far exceeded that paid to theirs and therefore provided little incentive to clear the arrears (Table 1.1).³² Moreover, the Board felt the Admiralty should have:

readily perceive[d] that the clerks in the Sick and Wounded Office unfortunately both for the service and themselves, [had] not experienced encouragement proportionate with their neighbours, or calculated to meet the increased expenses of the times, or to induce those of superior abilities to remain in the service.³³

Ultimately the Board was denied both an increase in the number of staff and an increase in staff pay.

When the 13th Report of the Commissioner of Naval Inquiry was submitted in 1806, it found abuses in the contracts drawn up by the Board.³⁴ It was at that point the decision was made to place the care of sick and hurt men under the direction of the Transport Board, the same board who had taken over the management of the prisoners-of-war a decade earlier. Charles Middleton, by 1806 Lord Barham, explained the reasons for the amalgamation of the two Boards. He found 'the deplorable state of the business in the department of the Board for Sick and Wounded Seamen ha[d] long been known', and

³⁰ Ibid.

³¹ Ibid.

³² Ibid.

³³ Ibid.

³⁴ Lloyd and Coulter, *Medicine and the Navy*, p. 5.

considered it advisable to place its business in the hands of a Board ‘accustomed to the investigating of accounts.’ On the Sick and Hurt Board at the time of the amalgamation were two medical men and one civil commissioner. Of these, he said, only one was resident in London, so that the Board met too infrequently to supervise current business, hence the ‘immense accumulation of arrears.’³⁵ One of the only persons to come to the Sick and Hurt Board’s defence was Dr Jonathan Harness who reminded Barham of the recognition due to them for the improvement in seamen’s health, most recently the mandatory issuance of lemon juice to prevent scurvy. He also insisted that Dr Baird, the hospital inspector for the Board, who was a friend of St Vincent and ‘one of my personal enemies’, had influenced Barham against the Board. Harness, who was senior commissioner, felt that blame was inaccurately attributed to him. In spite of that, Harness’s twenty-nine years of service were taken into account, including his service as Physician to the Mediterranean Fleet, which persuaded Barham to appoint him the medical commissioner under the guidance of the Transport Board.³⁶ Dr John Harness was the only commissioner to transfer to the Transport Board and he was the only one of the seven commissioners who was medically trained. In January 1806 the Admiralty ordered the office books, papers and instructions sent to the Transport Office.³⁷

	Navy Office	Victualling Office	Sick and Wounded Office
Principals	£800 per annum	£700 per annum	£400 per annum
1st Assistants	£500	£400	£150
2nd Assistants	£300	£250	£120
3rd Assistants	£250	£250	£100
4th Assistants	£150	£150	£80
5th Assistants	£130	£120	£80
6th Assistants	£120	£100	£80
7th Assistants	£100	£90	£78/5s
8th Assistants	£90	£80	£78/5s
9th Assistants	£90	£80	£78/5s
10th Assistants	£80	£80	£78/5s

Table 1.1 – Clerk Salaries in 1799 According to the Sick and Hurt Board³⁸

The termination of the Sick and Hurt Board came at a most inopportune time. If they had been allowed to continue, at the very least, until the end of the Napoleonic War, there was a real possibility that a number of medical improvements would have been championed by the medically knowledgeable and dedicated commissioners. One only needs to compare Commodore George Anson’s voyage in the early 1740s and Captain Matthew Flinders circumnavigation of Australia in 1801 to substantiate the Board’s noble efforts. The

³⁵ Ibid., pp. 5-6.

³⁶ Sir John Knox Laughton, (ed.), *Letters and Papers of Charles, Lord Barham*, vol 3 (London: Navy Records Society, 1911), pp. 124-133.

³⁷ NMM, ADM/E/52, Admiralty to Sick and Hurt, 29 January 1806.

³⁸ Ibid.

former returned from his epic voyage in 1744 with only 500 men out of nearly 1,900, a majority of them dying from disease, while in the latter's case not a single person died due to disease.³⁹ Certainly this comparison can only be a testament to the overwhelming commitment of the commissioners to the health of seamen. During the last decade of its existence the Sick and Hurt Board engaged in a variety of duties which had, up until that time, not been customary for that department. It 'expressed opinions on medical matters and naval health in more forthright terms. It was vigorous and active in proposing improvements in medical care, in suggestions for controlling costs, in improving the professional standing of surgeons, and trying, with some success, to achieve a better medical service at sea.'⁴⁰

Sick Quarters, Hospitals and Hospital Ships

A major difficulty which faced the Sick and Hurt Board abroad was the securing of suitable on shore accommodation for sick men. It was routine during the early to mid eighteenth century to hire private houses temporarily as required. These sick quarters were rented at the cheapest possible price and only on short term contracts. Once the number of sick men on shore was reduced, sick quarters were released immediately and thereby no longer incurred a charge. Unfortunately, this system teemed with flaws. As the quarters were procured on the cheapest terms, that meant they regularly hired rooms in public houses or accommodations near drinking establishments where convalescing men acquired alcohol, which in no way aided their recovery. Another unfortunate consequence of using this system was the opportunity for men to desert the service. Ships' surgeons also found it very difficult to attend sick men while they were scattered amongst various lodgings. This meant that seamen did not always receive necessary treatment. Townspeople also found the system unfavourable. When sick men were sent ashore, their contagious diseases quickly spread through towns subsequently infecting a number of the populace.

The advantages for the navy in using this system were essentially financial in nature. Because the navy did not erect and maintain facilities in most ports at home or abroad, they saved a large amount of capital. They hired accommodations in various ports and merely paid a landlady for use of the lodging when necessary without having to outlay a tremendous amount of money. The price of lodging included the cost of food and some care until the men were well enough to return to work, thereby affording the navy financial

³⁹ Glyn Williams, *The Prize of all the Oceans: The Triumph and Tragedy of Anson's Voyage Round the World* (London: HarperCollins, 1999), p. 202. Lloyd and Coulter, *Medicine and the Navy*, p. 177.

⁴⁰ Pat Crimmin, 'The Sick and Hurt Board: Fit for Purpose?' in David Boyd Haycock and Sally Archer (eds.), *Health & Medicine at Sea 1700-1900* (Woodbridge: Boydell & Brewer, 2009), p. 105.

flexibility with a nominal amount of capital to raise.⁴¹ Once the accommodation was no longer required, the navy simply terminated the agreement and did not pay any further money to the landlady. This system worked effectively enough to justify maintaining it for some time, although the Admiralty realised the hired facilities were deplorable.

In 1740, when the Sick and Hurt Board became a permanent fixture in the navy, they were immediately urged to evaluate the sick quarters system to determine what could be done to regulate that facet of service. Eventually, the Board produced a set of regulations aimed at their port agents instructing them on how sick men were to be dealt with when sent ashore for their recovery. The regulations were chiefly derived from several complaints of bad management with relation to the treatment of sick men ashore. Sick quarters, according to their new policy, were to be kept clean and not crowded with too many cradles or beds and allow a foot and a half of space between each one. The bedding was to be cleaned and aired often and, ‘especially when any man dies or recovers, the bedding in which he lay is to be aired very carefully before another man is put into it.’ Each sick man was to be issued with new sheets which were to be changed every three weeks. Men with different illnesses were not to be placed in the same room, especially those with contagious diseases, nor were they to be put into a room with men who were nearly recovered. Due to complaints of men sharing beds in sick quarters where one was found dead in bed alongside a living patient, a new regulation was added which required every man have his own bed or cradle. Public houses which sold strong liquors were no longer acceptable places to house sick men if private houses were available, and liquor was banned from sick quarters ‘it being a practice of pernicious consequence to the health of seamen.’ Surgeons were required to visit all men within their jurisdiction as often as their illness required, but no less than once a day. And finally, to prevent the payments for sick quarters from falling into arrears, it was now required to send the accounts for sick quarters to the Board every three months.⁴² That is not to suggest that the aforementioned written regulations were groundbreaking; on the contrary, many of them were already practiced in most ports. Their importance lay in the fact that they were finally put down in printed form, creating a more legitimate appearance for the Board and setting out boundaries for agents as to what practices would be tolerated and which ones were injurious to the already sick men.

By 1750, the navy had grown to be of the opinion that sick quarters were not beneficial in the men’s recovery nor were they practical for the service. Hospitals, they alleged, were the

⁴¹ By and large, payments for sick quarters ashore were made directly to land ladies in cash once services were rendered.

⁴² NMM, ADM/E/8a, Admiralty to Sick and Hurt, 3 June 1740.

most appropriate facilities for men to regain their health. According to the papers of Thomas Corbett, Secretary to the Admiralty from 1741 to 1751, the navy on the whole became disenchanted with sick quarters. He said:

...It is found by experience that hospitals contribute much more to the preservation and cures of sick and wounded men, than town quarters, in regard they are attended by such nurses &c in hospitals, as understand their circumstances, and are confined from town debauches, whereby relapses are prevented, and the cures hastened, but town quarters are attended with indigence, ignorance and carelessness, which neglects and hazards the patient, prolongs the cure, and excessively swells the public charge, it being observed that cures in hospital (in all acute diseases) are performed in much less time, and above all, do shorten (in a set number of men) the bill of mortality by one half, or more, and being within the walls of the hospital, prevents desertion, as is common in town quarters.⁴³

The navy's idea of what constituted a hospital cannot be confused with the present-day concept. According to the navy, hospitals did not have to be purpose-built, nor did they have to be very big and what they referred to as a hospital meant a variety of designs. At some ports, the hospital was simply a rented house where men could be kept in one location to ease the surgeons' burden and to control the influx of drink. When the Admiralty began considering the use of hospitals, especially those in home ports, they appreciated no existing buildings were sufficient to contain the number of men sent on shore. Thus, the idea of the navy constructing their own purpose-built facility near Portsmouth was devised. Plans for Haslar hospital, as it would come to be known, were first sent to the Sick and Hurt Board in June 1745, although a Parliamentary vote had already been granted five months earlier.⁴⁴ Haslar was completed in 1761, though once one wing of it was erected, it accepted a number of sick as early as 1754. For many years, Haslar was the largest hospital in Europe and when fully completed it had a maximum capacity of 2,000 patients; 'more than four times the size of Guy's and St Thomas's in London, the next biggest hospitals in Europe.'⁴⁵ The cost of building such a landmark facility exceeded £100,000 which was nearly double the price of the Admiralty building in London or the equivalent of constructing three battleships.⁴⁶ The design of Haslar was not revolutionary, nor was the plan for utilising particular wards to segregate infectious patients from those who were already on the mend. This was rarely possible in other facilities due to space, but with the sheer amount of room at Haslar, it became entirely feasible. And

⁴³ AL, MSS/121, Papers of Thomas Corbett, Secretary of the Admiralty.

⁴⁴ NMM, ADM/E/11, Admiralty to Sick and Hurt, 18 June 1845. Rodger, *The Command of the Ocean*, p. 309.

⁴⁵ Rodger, *The Command of the Ocean*, p. 309.

⁴⁶ Rodger, *The Wooden World: An Anatomy of the Georgian Navy* (London: HarperCollinsPublishers, 1986), p. 110. Rodger, *The Command of the Ocean*, p. 309.

under the watchful eye of James Lind, Haslar's first Physician, the quality of treatment the men received was of the highest class.

When George II approved the construction of Haslar at Portsmouth, he also agreed for a naval hospital to be erected at Plymouth, although its progress was much slower. Land was purchased by the Sick and Hurt Board in 1758 and its first patients were admitted as early as 1760. The design of Stonehouse hospital, as it was called, varied slightly from Haslar as it was built on the 'pavilion' system which meant that, rather than existing as one large building with a central courtyard, it was an arrangement of separate blocks. Its design ensured a further division between the contagious and the convalescents. This innovative hospital model proved rather successful and was copied to some extent in other European countries.⁴⁷

Despite the navy erecting the two large domestic hospitals, they were not readily prepared to lay out money to establish something quite so substantial abroad. They preferred, on the whole, to rent entire buildings and lodge sick men in them. There were, however, hospitals in existence abroad and had been since 1711 when the navy erected their first purpose-built hospital at Port Mahon, albeit a meagre facility.⁴⁸ Additionally the Admiralty invested money to erect a hospital at Jamaica in the 1740s. The latter proved to be a disastrous undertaking with a sizeable number of seamen succumbing to fevers unnecessarily.⁴⁹

Hospitals abroad were run by contract, and in some instances, contractors provided their own premises rather than the navy procuring one themselves. These contractors were responsible for furnishing non-medical staff, food and drink with their remuneration contingent upon the number of patients treated.⁵⁰ The contract system was far from ideal. Similar financial benefits of using the former sick quarters system appealed to the Admiralty in that they were not required to surrender capital to procure the lease of a building or to negotiate the purchase of large quantities of food. Gradually, the system of civilian contracts was rejected due to numerous complaints from both contractors and commander-in-chiefs who felt adequate care and attention for sick men was not provided. Contractors also lost money chiefly due to the unpredictability of the number of men sent ashore. If contractors purchased a sizeable amount of perishable food and a limited

⁴⁷ Rodger, *The Command of the Ocean*, p. 309.

⁴⁸ Kathleen Harland, 'The Royal Naval Hospital at Minorca, 1711: An Example of an Admiral's Involvement in the Expansion of Naval Medical Care' in *Mariner's Mirror*, vol 94 (February 2008), pp. 79-88.

⁴⁹ The development of hospitals in the West Indies including the one at Jamaica in the 1740s is discussed at great length in chapters 6 and 7.

⁵⁰ Rodger, *The Wooden World*, p. 109.

number of men were sent ashore, the contractors lost out on their investments. Conversely, if contractors had not ordered sufficient amounts, sick men suffered from the lack of food and necessaries. When contractors were not able to procure goods at an economic price, they were forced to purchase an adequate supply locally at an inflated rate. Either way, it resulted in a loss. When the contractor system proved deficient, contractors were replaced with medically trained men appointed by the navy while the navy also assumed financial responsibility for hiring hospitals and supplying them with provisions and necessaries.⁵¹

It is useful to present statistics on the number of men sent ashore to receive medical attention during the last quarter of the eighteenth century during war time. It is evident by Table 1.2 that a sizeable proportion of men serving in the Royal Navy were sent to hospital in order to receive care for an illness or wound. This does not take into account the number of men remaining on board their ships who received treatment from their surgeons. The significant drop in the percentage of men sent onshore in 1796 coincided with the compulsory issuance of lemon juice to seamen on foreign voyages as a prevention and cure for scurvy.

Year	Total number voted by Parliament in Royal Navy and Marines	Number Sent Sick	Number sent sick as a percentage of total number voted (%)
1778	60,000	15,978	26.6
1779	70,000	24,226	34.6
1780	85,000	32,121	37.8
1781	90,000	23,812	26.5
1782	100,000	22,909	22.9
1783	110,000	13,577	12.3
1793	45,000	17,280	38.4
1794	85,000	19,248	22.6
1795	100,000	20,579	20.6
1796	110,000	16,860	15.3
1797	120,000	20,544	17.1
1798	120,000	15,713	13.1
1799	120,000	14,608	12.2
1800	111,538	17,747	15.9
1801	131,538	15,082	11.5
1804	100,000	7,650	7.7
1805	120,000	8,083	6.7
1806	120,000	7,662	6.4

Table 1.2 – Proportion of Men Sent Sick to Hospital from Ships, 1778-1806⁵²

Closer to home, it was the responsibility of the Sick and Hurt Board to monitor the business of hospitals to ensure men received the best possible treatment. Hospital

⁵¹ R.S. Allison, *Sea Diseases: The Story of a Great Natural Experiment in Preventive Medicine in the Royal Navy* (London: John Bale Medical Publications, 1943), p. 154.

⁵² Extracts from Table II of Appendix 'Medical Science', 1833 quoted in appendix of Allison, *Sea Diseases*.

surgeons' instructions were under constant revision. From these regulations, it was evident the Board demanded a very high standard of care. Each man, they determined, deserved 600 cubic feet of space in a ward with windows and a large airing ground for recovering patients to walk around. During times of war, however, when small hospitals were hired or built, such a distribution of space was not required. The Board advised that particular attention be given to the location of hired hospitals as to be near a 'plentiful supply of good water, and that the soil and filth should never stagnate, but be carried off easily and expeditiously.' The cleanliness of the men was also considered. When sick men arrived at the hospital with a suspected infectious disorder or were just overall unkempt, surgeons were instructed to remove their clothing instantly and to wash them before they made contact with other patients. Hospital dress was issued and their personal belongings and bedding fumigated. Wards were instructed to be emptied occasionally in order to be cleaned, fumigated, white-washed and windows opened to oust any remaining infections.⁵³

An alternative to sending sick men ashore were hospital ships. They were first introduced in the seventeenth century, and during the following two hundred years several were kept in commission during wartime ready to attend the fleet. Their function was 'to take the surplus sick from other ships, and to treat them until such time as they could be placed in sick quarters ashore, or sent back to duty.' As a rule they were hired merchantmen or old frigates, sixth raters from 300 to 500 tons, which were converted by removing their guns, cutting extra ventilating holes in their sides, and clearing the gun-decks of all partitions and bulkheads so as to give a clear space fore and aft in which to house the sick men.⁵⁴ Hospital ships were instructed to be kept 'perfectly sweet and clean' and Hales's Ventilators 'worked in...[ships] incessantly either by hand or by means of a windlass.'⁵⁵

A hospital ship of two decks was equivalent to a one-ward hospital and therefore its size rendered it impossible to segregate men according to their diseases. A three-decked ship created a hospital with two wards, although, if scuttles were cut in the orlop deck, it may be said to have three wards. The use of the orlop deck in the three deckers had its disadvantages which stemmed from its location. Since it was situated below the waterline,

⁵³ TNA, ADM 98/14, Sick and Hurt to Admiralty, 1 February 1785.

⁵⁴ Allison, *Sea Diseases*, p. 106.

⁵⁵ TNA, ADM 98/14, Sick and Hurt to Admiralty, 1 February 1785. The Hales's Ventilator, invented by the dergyman and natural philosopher Dr Stephen Hales, 'was a hand-powered mechanical air pump which forced air down into the hold through tubes. In 1756 these ventilators were ordered to be installed in all ships of twenty guns and upwards, and captains were enjoined to see that the pump was worked for a period every watch.' Rodger, *The Wooden World*, p. 106.

the amount of natural light and the amount of fresh air that reached the deck was very limited. Another disadvantage resulted from the height of the deck, which never exceeded six feet. The Board proposed that convalescent ships should be moored near hospital ships as a way to remove the contagious threat from the recovering men. Whenever a man was recovering, he would be sent on board her.⁵⁶ While there were overall advantages of using hospital ships and convalescent ships such as preventing men from deserting and thwarting drunkenness and debauchery, the use of hospital ships never gained widespread use in the eighteenth century.

Surgeons

Surgeons who served in the Royal Navy held a very unusual position on board ship. For a majority of the eighteenth century, they received their warrants from the Navy Board, not the Admiralty, and therefore were not executive officers. And ‘while their names appeared in the ship’s books with those of the boatswain, the gunner and the carpenter, they drew less pay than these worthies and received infinitely less thanks.’⁵⁷ Typically surgeons were also looked down upon by their fellow shipmates because unlike the officers, surgeons wore no special uniform. Once surgeons entered service, they became the responsibility of the Sick and Hurt Board. Before they were appointed to a naval ship, it was requisite they passed a medical examination at Surgeons’ Hall at the Company of Barber-Surgeons (later the Company of Surgeons). Officers of the Company were only able to examine men in their competence at surgery and not in physic, although naval surgeons were required to act in both capacities. The right to examine would-be naval surgeons remained the responsibility of the Company until 1796 at which time the commissioners of the Sick and Hurt Board took over the examinations.⁵⁸ Before candidates attended an examination at Surgeons’ Hall, they served an apprenticeship to learn their skill, and although many did not hold a university degree, many attended lectures without graduating. To appreciate what the *viva voce* involved, it is useful to quote Peter Cullen who described his examination in the third person for the post of naval surgeon by the Company of Surgeons in 1789.

[T]he examiners were seated at a semi circular table...Mr Cullen having walked up to the table and made his bow was asked his name, from whence he came, for what purpose...On answering it was for the naval service, one of the examiners rose and taking Mr Cullen to the side of the room, enquired his age, his apprenticeship, studies, and practice in the profession...the examiner proceeded to question him in anatomy,

⁵⁶ TNA, ADM 98/14, Sick and Hurt to Admiralty, 1 February 1785.

⁵⁷ Allison, *Sea Diseases*, p. 113.

⁵⁸ *Ibid.*, p. 115.

physiology, and surgery...and asked how he would treat certain surgical cases...This gentleman was quite satisfied...and taking him to the centre of the table where the president was sitting said, 'I find this young gentleman fully qualified as an assistant surgeon for His Majesty's navy.' The president bowed to Mr Cullen and desired him to pay one guinea as a fee, and asked him to call the next day at the Navy Office where he would find his certificate.⁵⁹

2 amputating knives
1 amputating saw with spare blade
1 metacarpal saw with spare blade
2 catlins (double-edges amputating knives)
Pair of artery forceps
2 dozen curved needles
2 tenaculums (hooks for holding parts)
6 Pettit's screw tourniquets
Pair of bone nippers and turnscrew
3 trephines
Saw for the head (Hey's saw for enlarging cranial orifice made by trephines)
Rugins (raspatories or files)
Pair of forceps
Elevator
Brush
2 trocars (tube for withdrawing fluid)
2 silver catheters (tube for drawing off urine)
2 gum elastic catheters
6 scalpels
1 small razor
Key tooth instrument (for extracting teeth by torsion)
Gum lancet (for lanāng gum boils)
2 pairs tooth forceps
Punch
2 Seton needles (for drawing silk through the skin to leave a tract for drainage)
Pair of strong probe scissors
Curved bistory with button (scalpel)
Long probe
Pair of bullet forceps
Scoop for extracting balls
2 Probangs (throat sponges)
1lb ligature thread
1 paper of needles
Case, with lift-out
Apparatus for restoring suspended animation
Set of pocket instruments
6 lancets in a case
2 pint pewter dyster syringes (enema syringes)
2 sets common splints
Set of Japanned iron splints for legs
12 flannel or linen rollers
2 18-tailed bandages
20 yards of doth for tourniquets
60 yards of tape
Cupping apparatus, consisting of 1 scarificator and 6 glasses

Table 1.3 – List of Instruments in a Surgeon's Chest, 1812⁶⁰

⁵⁹ Zachary B. Friedenber, *Medicine Under Sail* (Annapolis: Naval Institute Press, 2002), pp. 5-6.

⁶⁰ Lloyd and Coulter, *Medicine and the Navy*, p. 16.

After passing their examination, it was the surgeons' job to assemble their own medical chests with instruments and medicines before receiving their warrant. The cost of the chest was paid wholly by the surgeons who had also just paid to appear at Surgeons' Hall.⁶¹ Table 1.3 catalogues the vast array of instruments surgeons were required to have in their chests in 1812: the list in the eighteenth century was not markedly different. According to P.K. Crimmin, to help offset initial and ongoing costs, naval surgeons were paid six shillings and eight pence per man per cure.⁶²

Various Sick and Hurt Board members criticised the Admiralty's lack of attention to the status of naval surgeons and as early as 1781 Dr Robert Robertson, later senior Physician at Greenwich Hospital, argued there was a need to improve the status of naval surgeons to maintain parity with those in the army. This point was also raised by Thomas Trotter in 1797, himself a naval physician and a champion for medical changes.⁶³ Despite these and other protests made by commissioners, surgeons, physicians and captains, the surgeons' status on board ships changed very little. To add insult to injury, in 1802 all officers *except* surgeons and chaplains received a pay raise. Surgeons were aggravated that they were overlooked and it was 'not surprising that on the renewal of hostilities [in 1803] many surgeons refused to sign on again' for service.⁶⁴

Eventually, and mainly due to the serious threat posed by Napoleon, the Admiralty considered raising pay for surgeons. In 1804, the Admiralty solicited the Sick and Hurt Board to draw up a memorandum based on the current practice in the army's medical department 'to induce well-qualified and respectable persons to enter [naval] service' to which the Board supplied a plan of what needed 'to be done for the relief and encouragement of surgeons and surgeons [sic] mates in the Royal Navy.'⁶⁵ The first issue tackled by the Board in their plan was the matter of pay for not only surgeons, but also for hospital mates, dispensers and surgeons' assistants (as they would now be called rather than surgeons' mates). This last group now received six shillings and six pence per day aside from the benefit of ships' provisions. They also received two shillings per day half pay when naval service was reduced provided they had served two years subsequent to the confirmation of the regulations or three shillings per day if they had served three years.⁶⁶ Ships' surgeons were now paid on a gradient based on their years of service. For instance,

⁶¹ The crown offered a partial subsidy for a limited amount of medicines, but in no way did the allowance cover the total cost of their chests.

⁶² Crimmin, 'The Sick and Hurt Board', p. 51.

⁶³ *Ibid.*, p. 4.

⁶⁴ *Ibid.*, p. 32.

⁶⁵ NMM, ADM/F/36, Sick and Hurt to Admiralty, 8 December 1804.

⁶⁶ *Ibid.*

surgeons in active service who worked six years, of which not more than three years were spent as a hospital mate or assistant surgeon, were allowed eleven shillings per day and six shillings per day on half pay. Surgeons who served ten years, allowing not more than three years as a hospital mate or assistant surgeon, received fourteen shillings per day, although their half pay remained at six shillings. Another enticement for surgeons to enter navy service was the increase of gratuitous medicines which were now provided for all ships and vessels at the expense of Government, although surgeons were still responsible for procuring their own surgical instruments.⁶⁷

It was also decided that, in order to improve the surgeons' status on board, they should be issued with a standard uniform to enable them 'to have a similar rank with the officers of the same class in His Majesty's Land Service.'⁶⁸ When surgeons were in full dress, their uniform consisted of a blue cloth coat with blue cloth lapels, cuffs and collar, with three buttons on the pockets and cuffs. The coat was to be worn with a white cloth waistcoat and breeches and a plain hat. Surgeons' mates also wore a blue cloth coat with plain cuffs without lapels. Their waistcoat and breeches were allowed to be white or blue cloth. All medical men were to wear the sword established for the officers of the navy, and surgeons serving afloat were to wear a button with a plain anchor in an oval, while those serving in hospitals would wear a similar button with the addition of 'H.S.' for hospital staff.⁶⁹ The estimated cost of the necessary reforms – increased pay, free medicines and a uniform – was £41,726-9s-2d. Ultimately, these long overdue recommendations were put into effect by an Order in Council in January 1805.⁷⁰ Although these reforms did further respect for naval surgeons, it was nearly 40 years until they were granted commissions rather than warrants.⁷¹

Arguments made by surgeons and physicians for improvements to naval service were part of a larger medical reform movement in the late eighteenth century known as the Enlightenment. Buckley maintains that 'this era...produced a prodigious list of discoveries and leading lights in clinical medicine.'⁷² These discoveries and advancements were not necessarily the innovation of classically-educated medical men; noteworthy developments stemmed from surgeons, particularly those working in the colonies or those associated with

⁶⁷ Ibid. In 1796, a gratis supply of principal medicines was ordered, but there were still a significant number that remained compulsory for surgeons to purchase.

⁶⁸ NMM, ADM/F/36, Sick and Hurt to Admiralty, 8 December 1804.

⁶⁹ Ibid.

⁷⁰ Lloyd and Coulter, *Medicine and the Navy*, p. 32.

⁷¹ Friedenbergl, *Medicine Under Sail*, p. 8. Surgeons were granted commissions in 1843.

⁷² Roger Norman Buckley, *The British Army in the West Indies: Society and the Military in the Revolutionary Age* (Gainesville: University Press of Florida, 1998), pp. 274-275.

military forces. Isolated locations, such as the islands of the West Indies, gave surgeons autonomy to implement their own systems of experimentation and observation in a 'closed' population. The same is true for military surgeons. Wartime meant that large numbers of men were overseas in a controlled environment such as an army camp or on board a naval ship and therefore able to be observed on a consistent basis. As will be shown in subsequent chapters, the contributions of naval surgeons during this period improved their professional status.⁷³

The life of a surgeon on board a ship was not an easy one. Aside from seniority struggles, he was required to live and work in dreadful surroundings. On board ship, he was not allocated any permanent space to attend the sick or wounded. Generally sick men remained in their own hammocks while he attended them at least once a day to record their progress, change dressings, alter their diets and examine their overall level of cleanliness. Dr Thomas Trotter, who was an advocate of sweeping changes for the medical department, described the lack of a 'commodious spot being set apart for the sick' on board for the surgeon's use. He divulged the experience on his first ship as a surgeon's mate where the sick-berth was 'half-enclosed with hammocks, being fixed near the galley; more with a view to stifle contagion with the smoke from the fire than to keep the patient comfortable.'⁷⁴ He was not the only naval surgeon to complain about the conditions in which the sick were kept. Dr James Lind, recognised for his efforts towards eliminating scurvy, described the place allotted for the sick generally to be in 'either the fore part of the gun deck, called the bay, which is the most damp and unwholesome part of a ship; or, what is nearly as bad, and very incommodious, the fore part of the hold.' Both these confined places, he asserted, 'have too often proved a seminary of infection to the whole company.'⁷⁵

Generally surgeons themselves were berthed on the orlop deck (along with the purser) which is the lowest part of a ship aside from the hold. It was located below the waterline and therefore admitted no natural light and required the use of lanterns for light. The aft area of the orlop was referred to as the cockpit. When ships readied for battle, surgeons requested an area from the captain to use for the treatment of the wounded men and

⁷³ For further details on the ongoing medical reform and surgeons, see for example Irvine Loudon, *Medical Care and the General Practitioner 1750-1850* (Oxford: Clarendon Press, 1986), Susan C. Lawrence, *Charitable Knowledge: Hospital Pupils and Practitioners in Eighteenth-Century London* (Cambridge: Cambridge University Press, 1996) and Lisa Rosner, *Medical Education in the Age of Improvement: Edinburgh Students and Apprentices, 1760-1826* (Edinburgh: Edinburgh University Press, 1991).

⁷⁴ Christopher Lloyd, (ed.), *The Health of Seamen: Selections from the works of Dr James Lind, Sir Gilbert Blane and Dr Thomas Trotter*, vol 107 (London: Navy Records Society, 1965), p. 261.

⁷⁵ Lloyd, (ed.), *The Health of Seamen*, p. 70.

typically they were allocated the cockpit. Once that was determined, the carpenters either laid down a platform with seamen's bedding placed on top or midshipmen's sea chests were shoved together to make an operating table. The floor was strewn with sand or sawdust to prevent everyone, including the injured, from sliding around in blood. As soon as seamen arrived in the cockpit, surgeons prioritised the men according to their injuries; the most serious were urgently treated first.⁷⁶ James Lowry, who was an assistant surgeon on board the *Foudroyant*, briefly described his experience working in the cockpit during an encounter with the French vessel *La Hoche*. He recounted that the English:

had not many men killed or wounded. I was busy, employed in the cockpit stopping the haemorrhages and dressing the wounded. The surgeon and all his assistant surgeons are stationed below (which is out of danger of the balls in the time of battle) where they have a platform made with beds laid on for the convenience of the wounded, all their surgical instruments, bandages, etc etc in readiness, and where the officers and sailors are brought to be dressed of their wounds.⁷⁷

Developments in ship design from the 1790s impacted the way the sick and wounded were treated by surgeons on board. One of the most vital advancements was the introduction of the purpose-built sick berth on board. Developed by Captain Markham of the *Centuar*, the berth was located below the forecastle in an area that was formerly used as a pig sty.⁷⁸ There were numerous benefits to relocating the sick berth to a permanent area, rather than continuing with ad hoc arrangements in the cockpit. The new location gave sick men the benefit of natural light and fresher air as well as containing a round house (toilet). Dr Trotter spoke highly of the 'improved sick-berth [which] the navy is indebted to Captain Markham...and is much beyond any ward in our Royal Hospitals.'⁷⁹ Markham's design included a large sleeping area where the sick and wounded men could sling up their hammocks and an adjoining dispensary where the surgeon had his own desk. In frigates, the entire berth covered an area 15 feet long by 11 feet wide.⁸⁰

Trotter described the new layout:

The Markham sick-berth takes in the two foremost guns under the forecastle, all that space from the ship's side to the fore-mast, so that it includes the round-house and head-door, and also the midships, which

⁷⁶ See Rodger, *The Wooden World*, pp. 66-67; Friedenberg, *Medicine Under Sail*, pp. 17-18; Joan Druett, *Rough Medicine: Surgeons at Sea in the Age of Sail* (New York: Routledge, 2001), p. 113.

⁷⁷ James Lowry and John Millyard (eds.), *Fiddlers and Whores: The Candid Memoirs of a Surgeon in Nelson's Fleet* (London: Chatham, 2006), p. 33.

⁷⁸ He was later Admiral John Markham: Captain 1783, Lord of the Admiralty 1801-4, 1806-7, Admiral 1806 and MP for Portsmouth 1802-25.

⁷⁹ Lloyd, (ed.), *The Health of Seamen*, p. 261.

⁸⁰ Robert Gardiner, *Frigates of the Napoleonic Wars* (London: Chatham, 2000), p. 101.

was formerly occupied by a pig-stye. The head-door is converted into a sash-window, and occasionally into venetian blinds. Over the midships is a large sky-light, which give a cheerful appearance to the whole, and in warm weather is thrown open, so as to cause a fresh current of air to pass through the ports and head-window. The walls of the sick-berth are either panels of deal, or strong canvas, so closely put together as to exclude the smoke of the galley fire, and nicely whitewashed once a month. The furniture consists of commodious benches and a settee for the weakly people to recline upon. Tubs and pails for washing, cooking vessels, with towels and clean canvas tablecloths, dishes, spoons, knives and forks, etc., complete the utensils, all of which are kept in fine order in concealed lockers within the sick berth. A canvas cot or two, with hospital bedding, neatly surrounded with clean white calico curtains, are kept for fractures or particular surgical cases. The utmost attention is paid to cleanliness and purity, which is easily done, as the round-house is often washed. In cold or damp weather a hanging-stove with clear embers is brought in and also when the deck is scrubbed...The space between the head-doors and under the sky-light is used as a dispensary and elegantly fitted with a desk; and along the head are ranged the drawers and bottles for present use, in a style of neatness that would do credit to the first apothecary's shop in London.⁸¹

The layout for Markham's sick berth is seen in Figure 1.1. Totter found this new arrangement beneficial to surgeons because:

...the practice of seeing and examining every [sick] person in the list in daylight...makes it more convenient...In surgical cases, such as wounds and sores, it is also of the first importance to view them in a clear manner, for the treatment so much depends on the appearance and colour of the matter and surface of the ulcer. All of these advantages are now obtained in the highest degree; and I trust service will never again relapse into the slovenly habit of dressing or examining the sick in a cockpit...A sick berth of these dimensions, in the larger class of seventy-fours, gives room sufficient for twenty-two people to hang up their beds, with full advantage to attendance and purification. It can seldom happen in a ship duly regulated that more space can be wanted, as a convalescent temporary berth can be easily erected on the opposite side.⁸²

It was not till the very end of the Napoleonic War that the Admiralty gave orders for Markham's sick berths to be fitted agreeable to the new form by the dockyard joiners.⁸³

⁸¹ Lloyd, (ed.), *The Health of Seamen*, p. 262.

⁸² *Ibid.*, p. 262.

⁸³ *Ibid.*, p. 263.

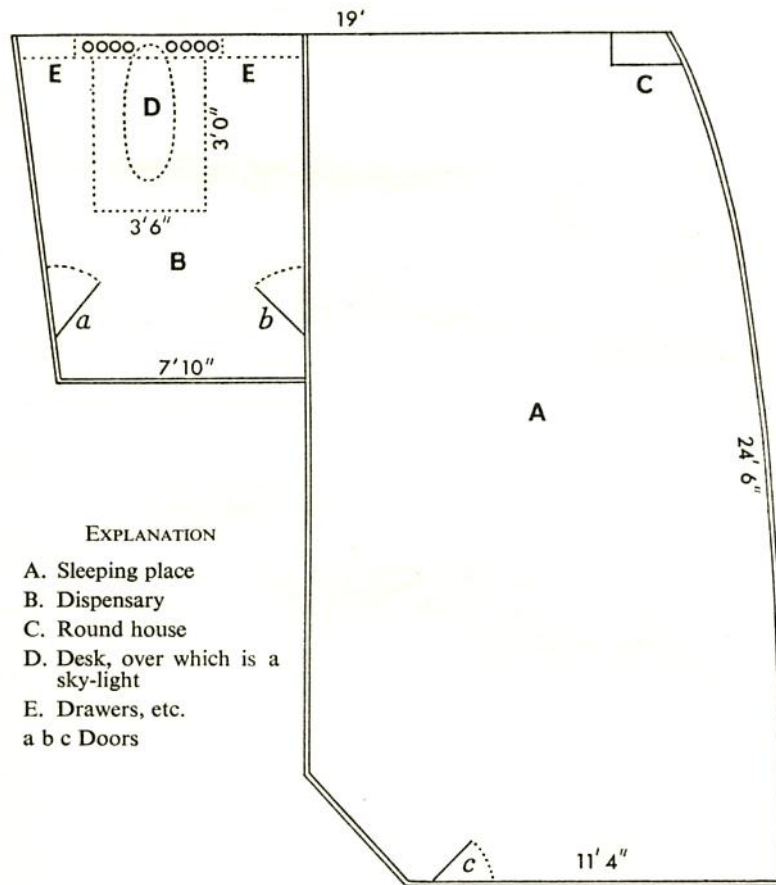


Figure 1.1 – The Layout of the Markham Sick Berth⁸⁴

Naval surgeons in the eighteenth century were faced with a difficult role. They were warrant officers, but were not executive officers. They were expected to pay for all their instruments as well as medicines for the entire ships' crew. They wore no naval uniform and secured little respect from senior officers. Army surgeons were held in higher esteem and because of this, were better compensated financially for their services. Combined efforts to change the surgeons' status by the Sick and Hurt Board, admirals, captains, physicians and the surgeons themselves paid off. The surgeons' role underwent significant changes such as an increase in pay, the distribution of gratuitous medicines, the alteration of the sick berth from a temporary configuration to a purpose-built spacious area, the allocation of uniforms and the issuing of a sword. The dedication shown by the aforementioned people afforded the surgeon a better opportunity in the navy and therefore provided an enhanced system of treating sick seamen.

⁸⁴ Ibid., p. 262.

Physician

While the surgeon was the simple warrant officer on board a ship, his sophisticated gentlemanly counterpart was certainly the physician. These two men differed on many levels. The physician underwent a prolonged university education, typically in Scotland, to render him expert in the liberal arts and sciences. They were indoctrinated in theoretical foundations of medicine promoted by such revolutionary men as the Dutch anatomist Herman Boerhaave (1668-1738) while surgeons traditionally practiced the art of surgery. Medical historian Roy Porter declared the physician to be ‘upright, trustworthy and God-fearing, grave, sober and devoted to learning not lucre.’⁸⁵ Eighteenth century physicians were expected to diagnose complaints, make a prognosis, prescribe treatments and medicines and provide attendance and advice.⁸⁶ The Hippocratic Oath taken by the physicians forbade them to do any knifework and Porter asserts that while recognising the surgeon’s skills, ‘this bred an enduring medical division of labour in which surgery was viewed as inferior, the work of hand not head.’⁸⁷

In the Royal Navy, physicians were appointed to act chiefly as medical officers. As they possessed a ‘medical degree rather than the merely nominal qualifications required for a naval surgeon, the physician was a more honoured and better-paid officer.’⁸⁸ There were only a handful of physicians serving in the navy, one to each of the larger squadrons.⁸⁹ While on board, they were under the orders of the admiral or commander-in-chief and resided either in the flagship or the hospital ship. Once they were appointed, their responsibilities were numerous although their main focus was the supervision of surgeons belonging to the squadron. Aside from that, physicians acted as consultants by examining the sick and decided which men were invalided, they reviewed sick returns and surveyed stores for the fleet.⁹⁰

One of the most notable physicians stationed in the West Indies during this time was Gilbert Blane, who was appointed Physician of the Leeward Islands fleet in April 1780 by Admiral Sir George Brydges Rodney. Rodney, himself a believer in maintaining the health of seamen by practicing preventative medicine rather than reactive treatment, felt Blane was the perfect candidate to take on the responsibilities of a physician owing to ‘his skill

⁸⁵ Roy Porter, *Blood & Guts: A Short History of Medicine* (London: Penguin, 2002), p. 34.

⁸⁶ Roy Porter, *Disease, Medicine and Society in England, 1550-1860*, 2nd edn (Basingstoke: MacMillan Press, 1993), p. 18.

⁸⁷ Porter, *Blood & Guts*, p. 110. Also see Stephen R. Bown, *The Age of Scurvy: How a Surgeon, a Mariner and a Gentleman helped Britain win the Battle of Trafalgar* (Chichester: Summersdale, 2003), p. 105.

⁸⁸ Lloyd and Coulter, *Medicine and the Navy*, p. 38.

⁸⁹ Rodger, *The Wooden World*, p. 20.

⁹⁰ Allison, *Sea Diseases*, p. 121.

and application.’ Rodney praised Blane for his work in fostering ‘the recovery of many sick as well as wounded, both among those on board as well as those sent to Gros Islet, St Lucia’ following an engagement with the French fleet.⁹¹ Since Blane had not been given his commission from the Admiralty, it was unclear to both he and Rodney what financial benefits he was entitled to and where he fell within the hierarchy amongst the officers. He regularly dined with Rodney and the men of the upper deck, something a surgeon was rarely invited to do. Once Blane was no longer serving in the West Indies, but before he was appointed a commissioner of the Sick and Hurt Board in 1795, he continued to campaign for the advancement of rights for naval physicians and to provide them with pensions following their departure from service. In December 1790, he petitioned His Majesty’s Council for an increase in pension pay as he felt their ten shillings a day, after taxes, ‘amount[ed] in reality to little more than two thirds of that sum.’ Additionally, he recognized their financial encouragement was ‘inferior to what is allowed to physicians to the Army.’ Naval physicians, he believed, deserved ‘equal encouragement [for] the talents and exertions of the medical profession.’⁹² A raise in pay for physicians did not come until 1804 at the same time surgeons’ benefits were adjusted.

Company of Surgeons/College of Physicians

The Royal Company of Surgeons has a long and distinguished history beginning with their partnership with barbers. Under the rule of King Henry VIII, the union between the Fellowship of Surgeons and the Company of Barbers was effected in 1540 in order to form the Company of Barber-Surgeons. In fact it was Thomas Vicary, surgeon to Henry VIII, who urged the King to introduce sufficient regulations for surgeons practicing in the city of London. The sixteenth century viewpoint saw barbers and surgeons almost in unison as both were trained in the art of using knives; also the barbers were in the habit of practicing minor surgery such as bleeding, cupping, tooth extraction and lancing of abscesses while surgeons performed a similar role.⁹³ This newly formed Company was rather unsettled with a certain amount of internal quarrelling amongst its members. Lloyd and Coulter keenly point out that the ‘internecine quarrels of a Company, in which the barbers provided most of the cash and the surgeons resented their condescending attitude, presaged its collapse in 1745.’⁹⁴ A petition for the separation of the two bodies was laid before

⁹¹ TNA, ADM 1/314, Admiral Rodney to Admiralty, 13 February 1781. TNA, PRO 30/20/9, Admiral Rodney to Admiralty, 18 February 1781.

⁹² TNA, ADM 1/5118/21, His Majesty’s Council to the Admiralty.

⁹³ Porter, *Disease, Medicine and Society*, p. 18. Also see Ian Burn (ed.), *The Company of Barbers and Surgeons* (London: Farrand Press, 2000).

⁹⁴ Lloyd and Coulter, *Medicine and the Navy*, p. 11.

Parliament which was then obliged to dissolve the ancient union between barbers and surgeons by an Act dated June 25, 1745.⁹⁵ Prior to the split, the Company of Barber-Surgeons did very little to advance the understanding of the practice of surgery. Moreover, the surgeons' association with barbers did nothing to advance their social status. The surgeons then formed their own Livery Company known as the Company of Surgeons. What the split determined, according to Porter, was that surgery was indeed its own craft; 'a cut above mere hairdressing.'⁹⁶

As mentioned, prior to the split, the Company of Barber-Surgeons undertook the responsibility for examining would-be naval surgeons. The practice began in 1697 and lasted until 1796 when the Sick and Hurt Board took over the surgeons' examinations. The system did not work properly while it was under the supervision of the Company. Candidates were examined by men who understood various forms of surgery; however examiners had no formal training in combating diseases (typically a physician's role) which was something that naval surgeons most certainly had to attend to once they received their warrants. Despite these shortcomings, the Company did play a useful role in naval medicine through their inspection of instruments and their opinions on various medicines and cures for the relief of seamen. During the Enlightenment, the Company changed their practices very little. They did not require attendance at medical lectures to issue licenses or memberships. While they did offer some education in anatomy, it only involved short demonstrations and not extended courses. Due to these very basic offerings for surgeons, Lawrence maintains that the Company's 'instruction was increasingly treated as inadequate or ancillary.'⁹⁷ Hospitals, as centres of experimentation and observation, emerged during this period as the hub for surgeons' development and instruction. The Company's influence weakened, particularly where the navy was concerned. When the Sick and Hurt Board became more self-reliant in the 1790s, their dependence on the Company waned while their attention turned to hospitals for advice when required.

Aside from the navy's relationship with the Company of Surgeons, it also sought advice regarding internal medicine which the Company could not always provide. For those queries, the Sick and Hurt Board turned to the Royal College of Physicians. The College consisted of members who were university educated in various subjects covering liberal arts

⁹⁵ Ibid., p. 11.

⁹⁶ Porter, *Disease, Medicine and Society*, p. 33.

⁹⁷ Susan C. Lawrence, 'Entrepreneurs and Private Enterprise: The Development of Medical Lecturing in London, 1775-1820' in *Bulletin of the History of Medicine*, vol 62 (1988), p. 173.

and sciences. Candidates for Fellowship in the College underwent an oral examination to demonstrate that they were 'groundedly learned' (classically educated) in addition to their medical knowledge.⁹⁸

The College had begun, as did the Company of Barber-Surgeons, in the sixteenth century under the direction of Henry VIII. A group of Oxbridge-educated physicians in London, led by Thomas Linacre, petitioned the King to establish the College in 1518. It was Linacre's desire to found an academic body for physicians rather than a trade guild of the kind which regulated surgeons and apothecaries. From the physicians' standpoint, they sought to regulate the service provided by physicians in London. They requested the right to examine those men who desired to work in London as well as the ability to reprimand those who were unqualified and/or those engaged in malpractice. As the founding charter decreed, the College 'curb[ed] the audacity of those wicked men who shall profess medicine more for the sake of their avarice than from the assurance of any good conscience, whereby many inconveniences may ensue to the rude and credulous populace.'⁹⁹ By 1523, an Act of Parliament extended the College's licensing powers from London to the whole of England and in 1551 it gained its 'royal' tag.¹⁰⁰

From its inception, the College was involved in battles with other medical bodies to control medical licensing in London. Early in the eighteenth century, the College suffered some setbacks, falling out of royal favour, and (after the House of Lords' judgement in the Rose Case, 1704) losing its monopoly to prescribe medicines in London.¹⁰¹ The Lords ruled that

⁹⁸ The Royal College of Physician's website, College History section, <http://www.rcplondon.ac.uk/museum-garden/history/college-history> [last accessed 13 June 2009].

⁹⁹ Ibid.

¹⁰⁰ Roy Porter, *Bodies Politic: Disease, Death and Doctors in Britain 1650-1900* (Ithaca: Cornell University Press, 2001), pp. 130-131.

¹⁰¹ Roger Jones, 'Apothecaries, Physicians and Surgeons' in *British Journal of General Practice*, vol 56 (March 2006), pp. 232-233. William Rose, a Liveryman of the Society of Apothecaries, practising in St Martin's-in-the-Fields, was sued for 'practising physic' on information supplied by John Seale, a poor butcher of Hungerford Market. Rose compounded and administered various medicines to Seale, who was said to be 'never the better but much worse' for his treatment. He was apparently so angry when he was presented with an astronomical bill of £50 that he complained to the Royal College of Physicians and Rose was prosecuted and tried before the Court of the Queen's Bench in February 1701. The legality of Rose's actions were debated at great length and eventually, and apparently reluctantly, judgement in favour of the Physicians was handed down in November 1703.

On the advice of the Attorney General, the Society of Apothecaries applied for a Writ of Error in the House of Lords, which was heard on 15 March 1704. Part of Rose's defence included the contention that '...selling a few lozenges, or a small electuary to any asking for a remedy for a cold, or in other ordinary or common cases, or where the medicine has known and certain effects, may not be deemed unlawful or practising as a physician, where no fee is taken or demanded for the same. Furthermore the physicians, by straining an act made so long ago, may not be enabled to monopolise all manner of Physick solely to themselves and be an oppression to the poorer families not able to go to the charge of a fee.' The Lordships were unimpressed by the Physician's argument, which also included the assertion that Apothecaries may '...slide themselves into practice in all, which if permitted would soon discourage the Faculty of Physick throughout this Kingdom and deprive the gentry of one of the professions by which their younger sons might honourably subsist and be a great detriment to the Universities.'

apothecaries could also prescribe medicine provided that they charged only for their medicines, not for their advice, something still reserved for physicians.¹⁰² Later in the century, in 1767, a bitter dispute with its own licentiates was brought on by the College's refusal to admit candidates from non-Oxbridge universities. The situation resulted in angry licentiates storming the College during a committee meeting, but it was not until 1835 that candidates from other universities were finally admitted.¹⁰³

For the Royal Navy's purposes, the College was an essential ally whilst members of the Sick and Hurt Board remained administrative and not medical. Given the choice between the College and the Company of Surgeons, the Admiralty on the whole preferred to solicit the advice of physicians based on the social and educational distinctions between the two groups.¹⁰⁴ Although, as N.A.M. Rodger points out, the 'College of Physicians in London were of little assistance in the field of naval medicine' simply because physicians during that period predominantly trained in 'a strictly theoretical school which placed a high value on *a priori* reasoning and regarded empirical observation as the mark of a charlatan.'¹⁰⁵ While Rodger's view is largely accurate, it is essential to mention that there were physicians who championed experimentation and nosological classifications.¹⁰⁶ Just like the Company of Surgeons during this period, the College also became less involved in medical reform partly due to internal quarrelling and debates with the Society of Collegiate Physicians.¹⁰⁷

The navy's reliance on the College of Physicians began to diminish once commissioners were appointed to the Sick and Hurt Board who had served as naval physicians since the latter was able to handle the majority of medical queries internally.¹⁰⁸ It was only when the Board could not reach a consensus amongst themselves that it was germane to contact the College for their opinion, which was ultimately the final word on any concern, although this happened rarely toward the close of the eighteenth century.

Their Lordships regarded the physicians' argument as being based on upholding ancient privilege and not on the provision of care for the sick, and found for William Rose and, by extension, for all apothecaries, and reversed the judgement. This landmark ruling formed the basis for the legal recognition of apothecaries as doctors, and marked the beginning of the general practice of medicine.

¹⁰² Porter, *Disease, Medicine and Society*, p. 33.

¹⁰³ The Royal College of Physician's website, College History section, <http://www.rplondon.ac.uk/museum-garden/history/college-history> [last accessed 13 June 2009].

¹⁰⁴ Bown, *The Age of Scurvy*, p. 105.

¹⁰⁵ Rodger, *The Command of the Ocean*, p. 307.

¹⁰⁶ Physicians such as Gilbert Blane, Robert Robertson and Leonard Gillespie are discussed in subsequent chapters. These men, in particular, utilised the ideas and practices of the Enlightenment.

¹⁰⁷ Ivan Waddington, 'The Struggle to Reform the Royal College of Physicians, 1767-1771: A Sociological Analysis' in *Medical History*, vol 17 (1973), p. 112.

¹⁰⁸ Crimmin, 'The Sick and Hurt Board', p. 60.

Society of Apothecaries

The last institution of medical men that was of service to the Royal Navy was the Society of Apothecaries who were in the business of supplying all required medicines to naval surgeons. An eighteenth century apothecary was ‘nothing if not versatile; he was the physician’s cook, the community’s general practitioner and the local pharmacist whose shop was a storehouse of pungent powders, fragrant herbs and contorted roots.’¹⁰⁹ Their history is something of an interesting one. Founded nearly a century after the College of Physicians, the apothecaries broke away from the Grocers’ Company which led to their organisation as the Society of Apothecaries in 1617. For the remainder of the century, the Society busied themselves with the establishment of Apothecaries Hall in Blackfriars which was destroyed by the Great Fire of London in 1666. They also founded the Chelsea Physic Garden in 1673, then known as Apothecaries’ Garden, for the purpose of training men to identify various types of plants. Similar to the other two organisations, a core function of the Society was to inspect apothecaries’ shops to prevent the distribution of inferior medicines and address accusations of malpractice. Additionally they monitored apprentices to ensure they learned the required subjects of chemistry and botany, although the Society was not given examination authority until the early nineteenth century. Unfortunately for apothecaries, they were viewed as the ‘physician’s underling: what the latter prescribed, the former dispensed.’¹¹⁰ This, as has been noted in the Rose Case, caused a great deal of tension between the Society and the Royal College of Physicians.

A very tight relationship formed between the Royal Navy and the Society in 1703 when the latter was granted the monopoly of supplying drugs to their surgeons. They even opened a special shop where surgeons, on obtaining their warrants, might purchase their medical stores.¹¹¹ Initially surgeons were required to provide a chest containing instruments and medicines at their own cost, however they were given a meagre allowance of gratuitous medicine which was not enough to cover the amount expended. Until 1779, senior surgeons received an allowance for the initial purchase of medicines valued at £33-9s; that amount was increased to £62-0s in 1781.¹¹² Once medications were purchased by naval surgeons and examined, chests were sealed up until surgeons arrived at their ships, thereby, in theory, ensuring they did not sell off medicines to recoup part of their costs.

¹⁰⁹ Penelope Hunting, ‘The Worshipful Society of Apothecaries of London’ in *Postgraduate Medical Journal*, vol 80 (2004), pp. 41-44.

¹¹⁰ Porter, *Bodies Politic: Disease, Death*, p. 193. Porter, *Disease, Medicine and Society*, p. 19.

¹¹¹ Allison, *Sea Diseases*, p. 122.

¹¹² L.G.C. Laughton, ‘Sick Bays’ in *Mariner’s Mirror*, vol 9 (1923), p. 97.

A more unfortunate situation belonged to those surgeons whose ships were ordered on foreign service where, if they ran out of medicines (which happened very frequently in tropical climates), they were forced to purchase additional supplies at inflated rates. When that situation befell surgeons in the West Indies, they petitioned the Sick and Hurt Board for reimbursement provided the Board received receipts of the expenditures and felt the charges justified. Eventually, following an abundance of complaints made to the Board regarding the outlay of monies for medicines and necessaries, it was finally agreed in 1796 that some principal medicines would be provided gratuitously to surgeons while the Society of Apothecaries advised them what to select. The Society maintained the arrangement to supply surgeons with medicines not furnished gratuitously by the Admiralty. This did little to ease the financial strain on surgeons serving in tropical climates. When supplies of gratuitous medicines ran out, surgeons were required to purchase enough locally to serve their ships. In 1804, it was agreed the Admiralty would supply all medicines gratuitously to surgeons. Thus, the monopoly held by the Society of Apothecaries for providing naval surgeons with all medicines came to an end. It was now the job of the Admiralty to supply drugs at the public expense, and in doing so, according to the historian Allison, ‘removed a burden which should never have been placed upon the surgeons.’¹¹³

Conclusion

When the navy’s resources and manpower began to spread out around the globe due to the expansion of the British Empire, the Admiralty was faced with a host of setbacks. Not only were seamen tempted by the prospect of desertion from service, they were also subjected to several diseases which at times proved fatal. This became a greater issue during times of war. At the commencement of the Seven Years’ War, the first few months were tremendously difficult for the navy. They were unable to mobilise quickly due to a shortage of manpower, and a portion of those they did recruit either deserted or succumbed to disease. In order to curtail these substantial losses, the Admiralty and Sick and Hurt Board began a naval medical reform movement. The Board, with independent assistance, served a fundamental role in the betterment of health amongst seafarers. From their establishment as a permanent department in 1740, the Board undertook innumerable measures to enhance medical policies and practices in the navy. They progressed from a largely administrative body who utilised the medical training of independent institutions to dictate the Board’s policy into a largely self-sufficient and competent organisation. Through their impetus, the navy ceased relying on the ineffective sick quarters system both

¹¹³ Allison, *Sea Diseases*, p. 123.

at home and abroad and replaced it initially with the contractor system and then with permanent naval hospitals and hospital ships. Baugh correctly surmised by doing this ‘the navy was moving away from a system designed mainly just to get the sick men out of ships where they might infect others and could not be adequately nursed, to a system designed mainly to preserve their lives and restore their health’ and restore them to active service.¹¹⁴

Aside from securing healthier and more effective housing for the sick and wounded, the Board also effected changes to the perceived role of surgeons. Despite being issued a warrant, surgeons were classed little above common seamen and well below commissioned officers. Through changes advocated by the Sick and Hurt Board, surgeons found themselves better placed amongst senior members of the crew and found their physical shipboard locale moved from the orlop deck to a purpose-built sick berth below the forecastle with a built-in dispensary. In this new setup, sick men were placed in a central and controlled environment meaning surgeons could better attend them.

Surgeons were not the only ones who underwent a role alteration. Naval physicians gained more prominence both on board ships and within the administration. While afloat, physicians were able to act as intermediary between surgeons who learned their trade by apprenticeship and senior officers who preferred carrying on a dialogue with classically educated men. Having physicians on board meant that captains were no longer required to monitor surgeons or to monitor onshore sick arrangements on a regular basis. Those physicians who joined the naval administration were equally as useful. As had been customary for most of the century, the navy secured the advice of independent medical institutions such as the College of Physicians before dictating new policies. With physicians on staff, the need to consult external institutions dwindled considerably. Guidelines and procedures were now fully accomplished in-house and produced by educated men who were experienced in the practice of naval surgery.

The dependence on separate medical institutions, which the Sick and Hurt Board relied on for the majority of its existence, began to wane toward the end of the eighteenth century. For the College of Physicians and the Company of Surgeons, the financial implications were slight as they rarely charged for their services apart from examining would-be naval surgeons. The Society of Apothecaries stood to lose the most. Once the Admiralty agreed to furnish surgeons with a number of gratuitous medicines, the requirement for surgeons to procure supplies from the Society was lifted. The Sick and Hurt Board contracted with

¹¹⁴ Daniel A. Baugh, *British Naval Administration in the Age of Walpole* (Princeton: Princeton University Press, 1965), p. 52.

London agents for the gratuitous medicines, meaning the Society lost a considerable portion of their revenue.

The Sick and Hurt Board's history is unlike any other naval department. Originally a temporary fixture during war time, the need for a permanent Board arose at the outbreak of the War of Jenkins' Ear. Once assembled, the Board's functions changed little in roughly half a century. Eventually, physicians and medically trained men were selected as commissioners and the Board's dynamics changed extensively. Their training meant they were able to be more hands-on with care regulations, they examined naval surgeons in-house and determined which medicines were distributed to the fleets. Unfortunately their extensive accounting arrears proved too much and eventually the duties of the Sick and Hurt Board were transferred to the Transport Board. But, fortunately, before it was dismantled, the Board enjoyed a decade of success in implementing 'practical measures of cleanliness, improved diet and better hospital care' which 'made headway against much sickness.'¹¹⁵

¹¹⁵ Crimmin, 'The Sick and Hurt Board', p. 59.

Chapter 2

Naval Diseases in the West Indies

In a return to the House of Commons in 1762 it stated that of the 184,899 enlistments in the Seven Years' War thus far, 1,512 had been killed in action while 133,708 were lost to the naval service by other causes, predominantly from sickness and desertion.¹ Michael Duffy cites a similar set of figures for the American War of Independence. Of the 175,900 enlistments from 1774 to 1780, 1,243 were killed in action, 18,545 died of disease and 42,069 deserted.² As exact figures are available for the latter war, it is simple to calculate the total percentage of men who succumbed to disease. During that time, less than 1 per cent of men died as a result of combat while 10.5 per cent of men died as a result of illness. Death from disease, and not as a direct result of combat with the enemy, was in fact one of the navy's biggest adversaries.

Life on board a sailing ship was gruelling and unhealthy. Ships teemed with refuse, rotting provisions, rats, insects, dirt and unclean drinking water. It is not surprising that these conditions resulted in diseases becoming widespread. Provisions for seamen to clean themselves and launder their belongings were not supplied by the navy meaning the men usually slept in filthy hammocks and wore the same dirty clothing for months at a time. Elsewhere on board, unhygienic conditions prevailed. The bilge, for example, was the most fetid area as it was filled with noxious gases and the stench of rot emanating from refuse and stagnant water.

Overcrowding was a major problem. Seamen worked closely alongside one another and enjoyed very little individual space. Ships carried a large number of seamen which encouraged the rapid spread of disease among the crew and resulted in a considerable loss of life. Ships generally left England carrying more seamen than were needed to operate the sails and guns because the navy calculated that a percentage of them would succumb to disease and wounds. If their estimations were correct and a certain percentage of seamen died, there were still enough seamen to man the ship. By doing this, the Admiralty created a vicious circle. Initially, by placing an excess number of seamen on board, they made ships extremely overcrowded and promoted the spread of disease. To compensate for the loss of men due to disease (which was partly due to overcrowding), the Admiralty considered it essential to order an excess number of men on board each ship. Problems

¹ Figures in Michael Duffy, 'The Foundations of British Naval Power' in *The Military Revolution and the State 1500-1800*, vol 1 (Exeter: University of Exeter, 1980), p. 72.

² *Ibid.*, p. 72.

with overcrowding were especially true in larger ships-of-the-line. In those larger ships, the calculated amount of space per seaman was significantly less than the allocated space in smaller frigates and schooners. As a rule of thumb, seamen in smaller ships were generally healthier because of the extra personal space and because those ships generally spent more time cruising which kept them offshore and away from disease-carrying insects.

Naval surgeons utilised both a traditional system of treating patients – that being the belief in the Hippocratic and Galen principal of the ‘four humours’ – as well as the more contemporary views of the Enlightenment.³ While the former depended heavily on the assumption that keeping the four humours in balance resulted in a healthy person, the latter relied on observation and experiment. Thrown into this complex mix was the idea of ‘climatorial’ or ‘miasmatic’ influences versus the ‘contagion’ theory. Miasma theory had existed since ancient times and was most closely related to the principle of the four humours. The belief in the humoural theory began to wane among surgeons and physicians in the eighteenth century, while at the same time the belief in miasmatic influences gained strength; the latter theory appealed more favourably to physicians and surgeons who were familiar with the distribution of yellow fever and malaria.⁴ Despite the increase in popularity, the Enlightenment brought the miasmatic theory into question, dividing the medical community between it and the ‘contagion’ theory. Interest in contagion, also referred to as ‘germ’ theory, appears to have proliferated from scientific research carried out in the eighteenth century and carried on well into the following century.⁵ This varying opinion on medical ideas and values by European surgeons and physicians resulted in various diagnoses, treatments and remedies for a number of naval diseases in the eighteenth century. While this is an oversimplification of the various medical concepts at play during the period covered by this thesis, it is meant to emphasise the complicated nature of medicine at the turn of the century and the shift from theory and speculation to experimentation and observation.

No matter which theory medical men subscribed to, they were chiefly limited to practicing curative medicine: very little medicine at that time was preventative. Since the symptoms

³ Discussed in greater detail in the Introduction.

⁴ It is necessary to mention that in the early eighteenth century, the term ‘malaria’ did not exist in contemporary language. The first known English use of the word occurs in a letter written by Horace Walpole to H.S. Conway dated 5 July 1740. Walpole wrote, ‘There is a horrid thing called the mal’ aria, that comes to Rome every summer and kills one...’ Notwithstanding this letter, the word did not fall into everyday use until much later. In terms of this thesis, the term ‘malaria’ will be substituted for historical terms of the disease (ague, intermitting fever, marsh fever and swamp fever). See Saul Jarcho, ‘A Cartographic and Literary Study of the Word *Malaria*’ in *Journal of the History of Medicine and Allied Sciences*, vol 25 (1970), p. 31.

⁵ Margaret Pelling, ‘The Meaning of Contagion: Reproduction, Medicine and Metaphor’ in Alison Bashford and Claire Hooker (eds.), *Contagion: Historical and Cultural Studies* (London: Routledge, 2001), p. 16.

of the diseases themselves were often unclear and inconsistent, treatment was varied and contradictory among naval surgeons. An illness described by one surgeon as an 'ague' could be described by another as a 'quartan fever', while still another could refer to it as a 'bilious intermitting fever'. These three surgeons could potentially treat the disease in as many methods. While there was some consistency in treatment in the navy, diseases were typically identified by individual surgeons who then attempted to provide a cure according to their own knowledge and experience. As difficult as it was for naval surgeons to consistently identify and record diseases, it is equally as difficult for historians to perform retrospective diagnoses using eighteenth century documents: yellow fever is a notable exception due to its conspicuous symptoms.⁶ Diseases were recorded in those documents without any exactitude. It will be demonstrated in this chapter that the terms, perceptions, symptoms and treatments of the most common naval disorders frequently varied from surgeon to surgeon, making modern-day analysis complicated.

Seasickness was the only true naval disease. All other ailments endured by seamen were also found among the population-at-large. Seamen were more prone to experiencing certain diseases in the West Indies including yellow fever and malaria. The men ordered to that region of the world, belonging to both the navy and army, were considered to be at high risk of exposure to these particular diseases. As will be demonstrated in a subsequent chapter, seamen ordered to the West Indies remained generally healthy, although there were specific periods when outbreaks precipitated slightly higher-than-normal morbidity and mortality rates.⁷ One such outbreak occurred in the West Indies during the wars with France at the turn of the century. According to figures quoted by David Geggus, for the period between 1793 and 1815, some 70,000 British troops died in the West Indies.⁸ He maintains that 'the turbulent years of the great military expeditions, 1793-1798, claimed just over half this number [35,000 troops].' Geggus also claims that for the period 1793-1801, the Royal Navy lost more than 30,000 men in the West Indies, which included figures from

⁶ J.R. McNeill, *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620-1914* (Cambridge: Cambridge University Press, 2010), pp. 33-34. Even McNeill acknowledges that retrospective diagnosis of yellow fever is not foolproof. He says, 'Dengue is also sometimes a hemorrhagic fever, with all the same symptoms except the black vomit. Louse-borne relapsing fever also mimics yellow fever symptoms fairly closely, and even malaria and typhoid can be mistaken for yellow fever. Infections manifest themselves differently in different victims; pathogens evolve; seventeenth- and eighteenth-century observers leaped to conclusions. Even with yellow fever, there is a real possibility of confusion and mistaken historical diagnosis.'

⁷ See Chapter 4 for a sample of sickness and mortality figures during the period 1770 to 1806.

⁸ David Patrick Geggus, 'Slavery, War, and Revolution in the Greater Caribbean, 1789-1815' in David Barry Gaspar and David Patrick Geggus (eds.), *A Turbulent Time: The French Revolution and the Greater Caribbean* (Bloomington: Indiana University Press, 1997), p. 24.

the documented yellow fever epidemic.⁹ According to Duffy's calculations, the number of battle casualties during the 1790s was relatively low meaning that mortality figures quoted by Geggus are in large part due to disease.¹⁰ There were a number of factors that brought about these high mortality figures. First, and most importantly, was the sheer volume of seamen and troops sent to the West Indies as expeditionary forces from 1793 to 1798. At no point before had such considerable forces descended upon the islands which were essentially composed of newly-recruited men who were 'unseasoned' to tropical service. As it will soon be demonstrated, the influx of unseasoned military forces from Britain and France accelerated the yellow fever epidemic. Second, the British expeditions' arrivals were ill-timed and coincided with the sickly season in the West Indies (August to December) as well as with the epidemic of yellow fever.¹¹

While both the navy and army were hit hard during the period 1793-1798 and then again to a lesser extent in 1802-1803, the sickness and mortality figures do not represent the eighteenth century as a whole. Yellow fever and malaria were the prevailing diseases; however seamen were troubled by several other afflictions which hindered their ability to contribute to naval operations. Of these other afflictions, the most prevalent were scurvy, dysentery, ulcers, rheumatism, ruptures and venereal diseases. Medical knowledge and understanding led surgeons and physicians to misinterpret the basis of most disorders and therefore many of them continued to beleaguer squadrons stationed in the West Indies. This chapter will explore these specific diseases in greater detail to demonstrate how they adversely affected naval operations.

Yellow Fever

Yellow fever was one of the greatest scourges of seamen in the West Indies. The disease was referred to by a variety of names including malignant fever, *vomito negro* because of the black vomit discharged by the sufferer, 'Barbados distemper', 'bleeding fever' and 'yellow

⁹ The yellow fever epidemic in the West Indies (and in some parts of the United States) lasted from 1793-8 with a slight re-emergence in 1802-3.

¹⁰ Michael Duffy, *Soldiers, Sugar, and Seapower: The British Expeditions to the West Indies and the War against Revolutionary France* (Oxford: Clarendon Press, 1987), pp. 337-338.

¹¹ In his *An Essay on Diseases Incidental to Europeans in Hot Climates. With the Method of preventing their fatal consequences. To which is added, an appendix concerning intermittent fevers*, James Lind suggested the rainy months in the West Indies were the most sickly. He cited the 'rainy season' as August, September, October and November, p. 118. Others, including Leonard Gillespie also suggested autumn was the most sickly season, particularly around the autumnal equinox. See *Advice to the Commanders and Officers of His Majesty's Fleet Serving in the West Indies, on the Preservation of the Health of Seamen* (London: 1798), p. 13. A number of naval officers felt the season continued later in the year. Writing in December 1772, Rear-Admiral Rodney spoke of Jamaica being 'extremely sickly for these three months past'. See TNA, ADM 1/239, Rear-Admiral Rodney to Admiralty, 19 December 1772.

jack', a name taken from the colour of a ship's quarantine flag.¹² Its progression through a squadron stationed in the tropics was rapid, and it was not unusual for a large portion of a ship's company to fall ill upon arrival. Men who exhibited symptoms of the disease often died in a short period of time. Most preventative measures were misdirected making them practically useless.¹³

The origins of the disease are unknown, but it is generally accepted that it spread from the west coast of Africa to the New World via the old slave trading routes. Most likely imported on Dutch vessels carrying slaves, the mosquito responsible for the fever's transmission could have survived the Atlantic crossing in water casks. Prior to the arrival of the Europeans, the West Indies were not the ideal breeding ground for yellow fever. Despite the warm temperatures and frequent rainfall, the islands lacked certain qualities which mosquitoes needed to thrive: namely not enough clean water storage containers, not enough vectors and most importantly not enough people for them to bite.¹⁴ Through the increase of sugarcane cultivation in the islands, mosquitoes were given their foothold in the West Indies. Large scale deforestation which paved the way for sugarcane plantations caused the eradication of a number of native birds who would otherwise have preyed on the mosquito population. McNeill maintains that 'whatever the effects of the sugar revolutions on mosquito predators, sugar plantations did wonders for [mosquito] breeding and feeding. Plantations and the ports that sent sugar to Europe made ideal incubators and larders' for the insects.¹⁵ The expansion of plantations meant there was also significant human population growth which the mosquitoes could thrive upon. As a result of this escalating economic development, port cities in the West Indies were forced to expand making the presence of additional government agents and military personnel necessary. The influx of non-immune people to populate the plantations and ports intensified the disease in that region, causing it to become more prevalent.

Yellow fever's first documented appearance was in Barbados in 1647 at which time 5,000 people died from a 'new distemper' characterised by black vomit.¹⁶ Once the disease reached the West Indies, its mosquito vector increased and it became endemic to that region. It spread to Guadeloupe and Yucatan in 1648, St Kitts in 1649, and Cuba in 1649-

¹² Kenneth F. Kiple (ed.), *The Cambridge Historical Dictionary of Disease* (Cambridge: Cambridge University Press, 2003), p. 365.

¹³ Louis H. Roddis, *A Short History of Nautical Medicine* (New York: Paul B. Hoeber, 1941), pp. 39-40.

¹⁴ McNeill, *Mosquito Empires*, p. 47.

¹⁵ *Ibid.*, p. 48.

¹⁶ Mark Harrison, *Disease and the Modern World: 1500 to the Present Day* (Cambridge: Polity Press, 2004), p. 79.

50.¹⁷ Not all West Indian islands suffered continually from yellow fever, particularly if the local population remained consistent with very few newcomers. In Cuba, for example, yellow fever flourished from 1649-55 and then disappeared until the 1760s.¹⁸ In fact, following the initial outbreaks in the mid-seventeenth century, yellow fever disappeared for nearly forty years. McNeill asserts that this came about because the disease had ‘worked its way through the susceptible hosts, leaving behind a higher proportion of immune people. It could not flourish again without a sufficient proportion of non-immune people.’¹⁹ Aside from the consistent population, sugar production also played a role in determining whether or not the disease was endemic on specific islands.²⁰ The particular mosquito which transmits yellow fever, *Aedes aegypti* (or *Stegomyia fasciata* as it was formerly known) has the ability to live on sucrose as well as on human blood. Sugar production in the West Indies grew in significance from the 1640s; islands whose livelihoods were centred around sugarcane typically suffered from yellow fever epidemics: Guadeloupe, Barbados, Saint Domingue, Martinique, Cuba and Antigua to name a select few.

It was not until the 1890s that the mosquito vector was identified, although there was some speculation that mosquitoes were carriers of the disease a decade earlier. In the eighteenth century, a number of lesser-believed theories existed as to the cause of yellow fever including sudden exposure to the sun, eating too great a quantity of animal products, drinking fermented liquors to excess, sleeping outdoors in ‘night damps’ and at one point, Rear Admiral Cochrane suggested that yellow fever was the result of seamen drinking rum of a very young age.²¹ However, the most common belief was that exposure to ‘unhealthy airs’ or ‘noxious land breezes’ triggered yellow fever. This ‘miasmatic’ idea was the prevailing theory in the West Indies throughout the 1700s and well into the 1800s. In order to prevent the disease from spreading to crews, naval captains considered it essential to keep their ships as far offshore as possible in order to avoid ‘land air’, as it was deemed

¹⁷ Philip D. Curtin, ‘Disease Exchange Across the Tropical Atlantic’ in *The History and Philosophy of the Life Sciences*, vol 15 (1993), p. 348.

¹⁸ *Ibid.*, p. 348.

¹⁹ J.R. McNeill, ‘Struggles for Empire in the American Tropics, 1650-1825’ in *Organization of American Historians Magazine of History*, vol 18 (April 2004), p. 11.

²⁰ It was not only the sugar itself that propagated the spread of yellow fever in the West Indies. The physical change in landscape from the time of European settlement also had an enormous impact on the spread of the mosquito vector. From an ecology standpoint, many islands in the West Indies underwent a transformation; slaves cut down and burned off millions of hectares of indigenous forests in order to plant sugarcane. Many species of local wildlife disappeared, and from a yellow fever point of view, the loss of birds was particularly advantageous and the mosquitoes had fewer predators. Sugar plantations themselves encouraged the spread of yellow fever through the use of day pots which typically collected rain and made ideal breeding grounds for mosquitoes. As sugar production became more lucrative in the eighteenth century, the population of non-immune Europeans flourished giving the disease the opportunity to spread rapidly through the West Indies. See Curtin, ‘Disease Exchange’, p. 348; McNeill, *Mosquito Empires*, pp. 47-52; McNeill, ‘Struggles for Empire’, p. 11.

²¹ TNA, ADM 1/326, Rear Admiral Cochrane to Admiralty, 25 July 1805.

especially unhealthy. Keeping the ships offshore produced the desired effect, but not for the reasons they supposed. Putting a fair distance between the ships and stagnant bodies of water such as swamps and marshes, the favoured breeding ground of mosquitoes, seamen had virtually no chance of coming into direct contact with them unless they were ordered ashore. Since mosquitoes were not considered the communicators at the time, neither the army nor the navy attempted to eradicate them by filling in swamps or mangrove areas. They remained unimpeded and continued to flourish in marshy areas.

Symptoms of yellow fever and malaria are very similar in that sufferers of both diseases experience fevers, headaches and vomiting.²² Yellow fever differs as it is a very quick killer, but for those who recover, they become immune to the disease for the rest of their lives. One of the crucial ways in which malaria differs is that it is a recurring disease which flares up periodically for the remainder of the infected persons' lives although they generally have a good chance of survival if treated properly.²³ Since victims of yellow fever became immune to the disease after suffering once, there is a good deal of truth behind the navy's claim that 'seasoned' sailors who had previously served in the West Indies once or who had been on station for long periods of time were less likely to fall ill. Essentially it was newcomers who were afflicted with yellow fever in the greatest numbers. In his *An Essay on Diseases Incidental to Europeans in Hot Climates*, Lind noted that 'the constitution of Europeans, by length of time, becomes seasoned to the East and West Indian climates, if it is not injured by the repeated attacks of sickness upon their first arrival.'²⁴ This was sometimes referred to by surgeons as a 'seasoning fever', after which time, the sufferer became accustomed to the tropical climate of the West Indies.

Once yellow fever was contracted, symptoms commenced with lassitude and weariness, shivering, an inclination to vomit, faintness and giddiness, flushing of the face and extreme pain in the lower part of the forehead and eyeballs. Sufferers were also prone to constant wakefulness, pain in the back and stomach and their tongues were covered with a dark fur.²⁵ In William Turnbull's *The Naval Surgeon*, he described his experience with the first stage of yellow fever during which time he witnessed the 'sudden giddiness and loss of

²² This similarity in the two diseases is problematic when historians are performing retrospective diagnoses, particularly as both diseases were referred to by a variety of names that were used interchangeably by surgeons and physicians.

²³ Fiammetta Rocco, *The Miraculous Fever-Tree: The Cure that Changed the World* (London: HarperCollins Publishers, 2004), p. 193.

²⁴ James Lind, *An Essay on Diseases Incidental to Europeans in Hot Climates. With the Method of preventing their fatal consequences. To which is added, an appendix concerning intermittent fevers. To the whole is annexed, a simple and easy way to render salt water fresh, and to prevent a scarcity of provisions in long voyages at sea*, 2nd edn (London, 1771), p. 160.

²⁵ John Pawley, *The Seaman's Medical Guide – Ship Emily Liverpool* (17 March 1864), unpaginated.

sight, to such a degree as to make the person fall down insensible.²⁶ He maintained that by the third day the skin and the eyes took on a yellow hue (where the disease's name originated from) and vomiting became unremitting and the bowels costive. Sufferers nearing the end of their lives experienced, 'foam issue from the mouth, the eyes roll dreadfully, and the extremities are convulsed, being thrown out and pulled back in violent and quick alternate succession.' Livid spots became visible on the skin, the pulse nearly disappeared and the whole body went cold. At the final stage, haemorrhages were frequent and occurred from almost every part of the body: 'the gums, the nose [and] the corners of the eyes...sometimes bloody exudations from the forehead, the armpits, from cicatrized wounds, large black spots, and foetid cadaverous excretions of every kind confirm the general state of putrefaction.'²⁷ Finally the body produced a strong corpse-like smell followed by the patients being carried off to death.

Frederick Marryat's fictitious novel *Peter Simple* centres round a young British midshipman during the Napoleonic Wars. In the book his character described the ship's arrival at Kingston, Jamaica during a yellow fever epidemic after which time the quartermaster detailed the symptoms of the disease to the midshipman:

With regard to Yellow Jack, as we call the yellow fever, it's a devil incarnate, that's sartain – you're well and able to take your allowance in the morning, and dead as a herring 'fore night. First comes a bit of a headache – you goes to the doctor, who bleeds you like a pig – then you go out of your senses – then up comes the black vomit, and then it's all over with you and you go to the land crabs, who pick your bones as clean and as white as a sea elephant's tooth. But there be one thing to be said in favour of Yellow Jack, a'ter all. You dies *straight*, like a gentleman – not cribbed up like a snow-fish, chucked out on the ice of the river St Lawrence, with your knees up to your nose, or your toes stuck into your arm-pits, as does take place in some of your foreign complaints; but straight, quite straight, and limber, like a gentleman.²⁸

The disease killed large numbers of men and influenced the outcome of various campaigns in the West Indies. Most recognised was Admiral Vernon's 1741 expedition to conquer Cartagena. He left England with 186 ships carrying some 26,600 men and almost instantly upon his arrival, yellow fever seized the squadron. Between his and the American forces who besieged Cartagena, some 70 to 80 per cent succumbed to the disease and the entire mission was labelled a disaster.²⁹ Twenty-one years later, the British siege and capture of

²⁶ William Turnbull, *The Naval Surgeon* (London, 1806), unpaginated.

²⁷ James Lind, *A Treatise of the Scurvy* (Edinburgh, 1753), unpaginated.

²⁸ Frederick Marryat, *Peter Simple* (Sandbornton, 1837), p. 170.

²⁹ Mark Harrison, *Medicine in an Age of Commerce and Empire: Britain and its Tropical Colonies, 1660-1830* (Oxford: Oxford University Press, 2010), p. 15.

Havana suffered similarly from yellow fever. Between 7 June and 9 October nearly eight hundred seamen and five hundred marines died, of whom only eighty-six had been killed by the enemy. The army suffered considerably more than the navy. Between 7 June and 18 October, it lost 5,366 men, of whom 4,708 had died from disease. These figures do not represent the total losses for both the navy and the army. At the conclusion of the campaign, a number of seamen and soldiers who had been sent to hospital no doubt died at a later time or were incapacitated for months.³⁰ The losses suffered during the siege of Havana are estimated to be roughly 40 per cent of the troops which was largely due to yellow fever.³¹

In fact, during the time of Vernon's expedition and the siege of Havana, periodic yellow fever outbreaks were common. Between 1690 and 1770, epidemics appeared in the West Indies when the largest proportion of the local population was not immune as most had recently arrived from Europe in order to take advantage of the rising price of sugar which peaked in the 1760s. Geggus claims that epidemics tended to appear in areas of most rapid development – 'at first in Barbados, then Martinique, Saint Domingue, in the 1730s and 1740s, the Guianas and Windward Isles in the 1760s, Cuba somewhat later.'³² By the 1770s, the influx of non-immune white Europeans began to level off. It was at that point that epidemics became less frequent and less severe. According to Geggus, yellow fever had become less virulent while 'local inhabitants must have acquired immunity in childhood or shortly after arrival in the Caribbean.' Once the bulk of the population had been exposed to the disease and become immune, the *Aedes aegypti* mosquito was unable to transmit the disease to newly-arrived individuals as they were not appearing in such elevated numbers. 'By postulating a low level of endemicity, one may thus account for both the decreased incidence of yellow fever epidemics and the immune status of the resident population during the 1770s and 1780s.'³³

Epidemics of yellow fever escalated again in the West Indies around the turn of the century.³⁴ Michael Duffy estimated that between 1793 and 1801 the navy lost approximately 19,000 to 24,000 men predominantly due to the outbreak of the disease.³⁵

³⁰ David Syrett, *The Siege and Capture of Havana, 1762*, vol 114 (London: Navy Records Society, 1970), p. xxxv.

³¹ Pratik Chakrabarti, *Materials and Medicine: Trade, Conquest and Therapeutics in the Eighteenth Century*, (Manchester: Manchester University Press, 2010), p. 52.

³² David Geggus, 'Yellow Fever in the 1790s: The British Army in Occupied Saint Domingue' in *Medical History*, vol 23 (1979), p. 41.

³³ *Ibid.*, p. 42.

³⁴ Kiple (ed.), *The Cambridge Historical Dictionary of Disease*, p. 367. Gilbert Blane, *Observations on the Diseases of Seamen* (London, 1789), unpaginated. 1793 and 1794 were especially bad years in the West Indies due to an outbreak of yellow fever.

³⁵ Duffy, *Soldiers, Sugar, and Seapower*, p. 334.

The great influx of soldiers and seamen during the joint-forces expeditions (1794 and 1795), prisoners of war, military contractors and their clerks doubled the white population of many West Indian ports in a short period of time, most of whom had never been exposed to yellow fever.³⁶ Almost immediately soldiers and sailors were attacked with the disease which decimated their numbers. All treatments to combat the disease were deemed ineffectual which therefore meant yellow fever persisted largely unimpeded and periodically hampered the navy's West Indies squadrons well into the nineteenth century.

Ague or Intermitting Fever (Malaria)

Fevers were endemic in the tropics and aside from yellow fever, the next big killer was malaria. Symptoms of malaria were similar to yellow fever, although with the former, depending on the strain suffers contracted, recovery could be quite rapid. Vomiting was a symptom of malaria, and it too had a distinctive colour, making it difficult for surgeons to distinguish between it and yellow fever.³⁷ Malaria sufferers undergo three stages of the disease: a cold stage, a hot stage and a sweating stage. During the cold stage patients feel extremely cold and shivery and experience a fever, headache and vomiting. This is followed by the hot stage which causes a burning sensation which often makes patients feel delirious. Lastly, throughout the sweating stage, patients emit a large quantity of perspiration until the fever drops and the sufferers gradually begin to feel a sense of relief and enjoy sleep.³⁸ Common symptoms throughout the three stages are an elevated heart rate, a mild jaundice (which can confuse it with yellow fever) and an enlarged spleen or liver.

Malaria is transmitted by the same method as yellow fever, however the parasite's carrier is the *Anopheles* mosquito. One significant difference in the transmittal of malaria is that the disease's life cycle is much more complex and spends time in both the mosquitoes and humans. There are five varieties of malaria (plasmodium parasite), which all differ in their level of severity: *Plasmodium falciparum* is the most serious and often fatal form, *Plasmodium vivax*, *Plasmodium ovale* and *Plasmodium malariae* cause milder symptoms and are not often fatal while *Plasmodium knowlesi* typically infects monkeys and rarely infects humans. Once a person is bitten, the parasites move through the bloodstream to the liver where they breed during an incubation period lasting a couple of weeks. Returning to the blood, the

³⁶ Morbidity and mortality figures for the 1794 Grey-Jervis expedition are addressed in greater detail in Chapter 4 as well as in Appendix 6.

³⁷ This similarity in the two diseases is problematic when historians are performing retrospective diagnoses, particularly as both diseases were referred to by a variety of names that were used interchangeably by surgeons and physicians.

³⁸ Kiple (ed.), *The Cambridge Historical Dictionary of Disease*, p. 203.

parasites then attack the red blood cells, whose weakening is responsible for the recurrent violent chills and high fever.³⁹ Since malarial strains differed significantly in their severity and as well as the duration, surgeons have historically referred to the disease by a variety of names including ‘ague’, ‘marsh fever’, ‘double tertian fever’, ‘quartan fever’ and ‘intermittent fever’.

For the same ecological reasons that yellow fever began to flourish, malaria was able to thrive in much the same way in the West Indies. The large-scale deforestation undertaken in order to clear land for plantations meant that many of the mosquitos’ natural predators were eradicated. McNeill points out that ‘deforestation and soil erosion created new lowland freshwater (or brackish) swamps...inaccessible to fish and other predators of mosquito larvae.’⁴⁰ Changes to the landscape on sugar plantations, particularly to irrigation systems, meant there were more ditches and canals with standing water, a favourite mosquito breeding ground. Moreover, the use of livestock on plantations further amplified the spread of malaria because the *Anopheles* mosquito feeds off of both human and livestock blood. As with yellow fever, the spread of malaria was also dependent upon population density and the ability for the parasites to reach non-infected people.

The prevailing medical understanding of the day attributed the disease to unhealthy airs (as mentioned previously, *mal aria* literally translates from Italian as ‘bad air’). Drawing upon Hippocratic teachings in miasmatic environmentalism, it was believed that the heat of the tropics produced putrescence from rotting vegetation, polluted water, sewage and animal ordure which emitted bad airs (*miasmata*) ultimately generating these terrible fevers.⁴¹ The only way to dispel the noxious vapours was to expose them to free currents of fresh air and fast-flowing water. This theory was not truly contested until the mid-1800s.

Unlike yellow fever which specifically affected tropical areas, variations of malaria were known in Europe. Documentation of malaria exists in writings dating from Roman times indicating the disease was fairly widespread in southerly regions. Malaria was not unknown in parts of England; reports reveal that it existed in a mild form at Sheerness and other south-east areas of the country.⁴² One only needs to refer to the Walcheren Campaign to observe the effects of malaria in Europe. In 1809 English troops were sent to Holland to attack Napoleon’s forces and capture a number of his newly-built ships. When the expedition set off, the allotment of medical provisions and medical men to attend the

³⁹ Porter, *Blood & Guts*, p. 6.

⁴⁰ McNeill, *Mosquito Empires*, pp. 55-56.

⁴¹ Porter, *Blood & Guts*, p. 90.

⁴² Lloyd, *The British Seaman*, p. 262.

troops was severely inadequate. According to a report written by John Webb, a physician who accompanied the Walcheren expedition, the troops sailed ‘with barely a day’s dose of Peruvian Bark [a proven preventative and cure]...some ships carried no bark at all.’⁴³ The troops arrived in August, and upon hearing this, Napoleon ordered the sea dyke breached causing ditches to flood in an area where the English forces were erecting gun and mortar platforms. The troops were soaked through and fever took hold of them at once. Scores of men were afflicted with fever and by 17 September, it had been contracted by 8,200 soldiers with 250 men dying every week.⁴⁴ The high mortality rate indicates that the men were suffering from either the *falciparum* strain of malaria, although some historians argue that malaria alone would not account for the severe and fatal nature of the disease over such a brief period of time. They suggest the disease may have been a hybrid of malaria along with typhus fever, typhoid fever and dysentery.⁴⁵

For some of the British troops, relief came in the form of Sir James McGrigor, Chief of Medical Staff (who later became Surgeon General to Viscount Wellington), who noted the insufficient availability of bark and demanded a large quantity be procured as soon as possible. He also observed that the men were in desperate need of a hospital. No hospital ships had been sent out with the forces, meaning that the sick required transportation back to England for treatment. Once the majority of troops had been removed at the end of the Walcheren Campaign, it transpired that a total of 4,000 men had died, while another 12,000 still remained ill in February the following year.⁴⁶ The cartoon in Figure 2.1 depicts the public’s interpretation of the calamity of Walcheren and the English forces’ inability to properly prepare for sickness.

⁴³ Rocco, *The Miraculous Fever-Tree*, p. 143.

⁴⁴ The prevailing theory is that the fever contracted by

⁴⁵ M.R. Smallman-Raynor and A.D. Cliff, *War Epidemics: An Historical Geography of Infectious Diseases in Military Conflict and Civil Strife, 1850-2000* (Oxford: Oxford University Press, 2004), p. 106.

⁴⁶ *Ibid.*, p. 154.

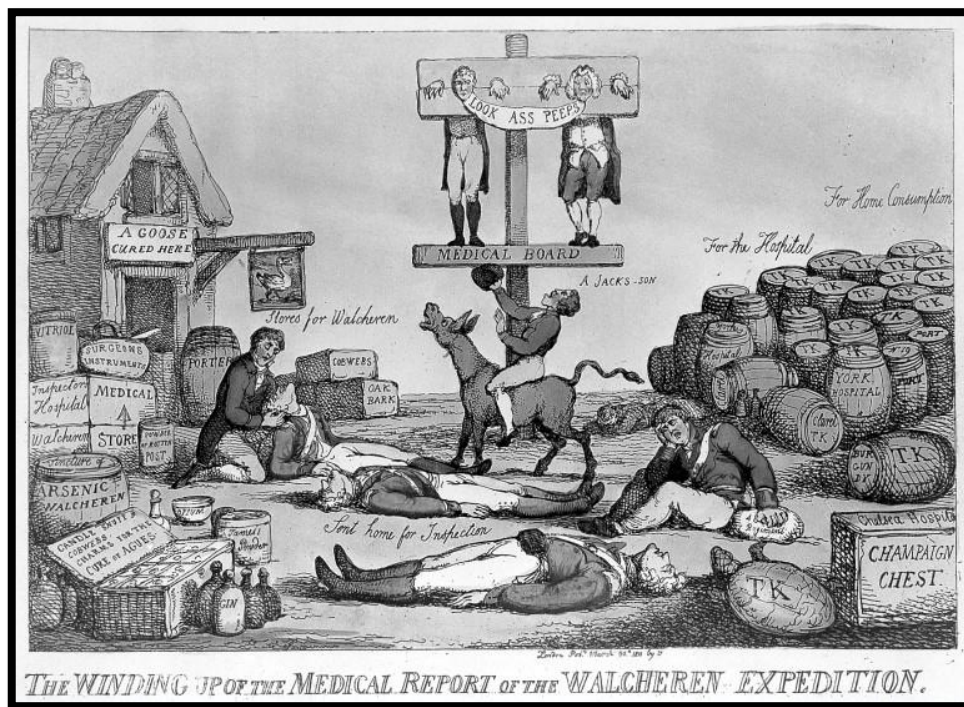


Figure 2.1 – Cartoon Depicting the Debacle of the Walcheren Expedition⁴⁷

Although malaria had a bad reputation for killing seamen in the West Indies, there were periods when it did not affect the squadrons too severely. McNeill asserts that long-term temperature fluctuations in the eighteenth century directly affected the number of malaria epidemics. When drier, cooler temperatures prevailed, the reproduction of the *Anopheles* mosquito was stunted, thereby reducing malarial cases in the West Indies. During the two decades when yellow fever epidemics were non-existent (1770s and 1780s), malaria outbreaks were practically unheard of. The low rate of malaria-related deaths did not continue for long. A decade later when the yellow fever epidemic was raging, incidents of malaria also increased. A cure was in hand the entire time, but its sporadic availability and underrated effectiveness meant it was often underutilised, ultimately resulting in unnecessary mortalities among the seamen.

Typhus

‘Ship fever’ (also called ‘gaol fever’, ‘jail fever’ and ‘hospital fever’) is the last type of fever the navy’s men were exposed to that will be covered in this thesis. The disease is now more commonly referred to as typhus. Unlike yellow fever and malaria, ship fever spread far beyond tropical regions since the source of the disease was not based on mosquito vectors. Aside from appearing in all climates, typhus also differed from other fevers in that

⁴⁷ ‘The Winding Up of the Medical Report of the Walcheren Expedition’ 1810. Copyright of the Wellcome Library, London. Reference L0011734.

it was contagious from person to person whereas yellow fever and malaria were not. It was spread by vermin, in particular by the body louse, and therefore the disease was associated with the filthy, cramped living conditions in such locations as jails and camps, hence the fever's many names. Lice and fleas thrived in soiled clothing and bedding and were easily transported between goals and ships when men were pressed for naval service. It was believed, as with the other fevers, that it was spread through noxious air, more specifically the stench rising from dirty persons and clothing.

Characteristically, typhus is identified by a sudden onset of several symptoms, followed by a high feverish period lasting roughly two weeks and terminates either by crisis (sudden improvement or decline) or rapid lysis (a more gradual abatement of symptoms).⁴⁸ Typical symptoms include prostration, aches and a widespread rash which covers a person's trunk and limbs. In severe cases, the prostration becomes more progressive with increased neurological symptoms including deafness, stupor and delirium eventually resulting in a coma prior to death.⁴⁹ One of the best observations on 'ship fever' was provided by Dr Robert Robertson, physician to Greenwich Hospital, in his book *Observations on Jail, Hospital or Ship Fever, from the 4th April 1776 until the 30th April 1789 made in various parts of Europe and America and on the Intermediate Seas*. In his study, Robertson described typhus as 'an evil confined to no particular country or climate, but extend[ed] its fatal effects as far as we have either society or commerce.'⁵⁰ With numerous outbreaks of typhus occurring throughout the eighteenth century, N.A.M. Rodger asserts that it was the real killer at sea in cold weather. An epidemic during the hard winters of 1739-1741 'wrecked the navy's mobilisation, with men falling sick faster than they could be recruited.'⁵¹ Typhus proved deadly again in 1755-1756 with over 2,000 men succumbing to the disease. During the course of his study, Robertson recorded notable outbreaks of typhus and specifically the one which distressed Admiral Byron's squadron. Seamen in his fleet began exhibiting symptoms of the fever in 1778 while they were in North America and once they reached St Lucia in January 1779, Byron was forced to land a portion of the 1,223 sick men suffering predominantly from typhus and scurvy.⁵² By April, the number of men suffering from scurvy had significantly reduced due to supplies of fresh provisions, although the number

⁴⁸ Maurice Bear Gordon, *Naval and Maritime Medicine During the American Revolution* (Ventnor: Ventnor Publishers, 1978), p. 99.

⁴⁹ Kiple (ed.), *The Cambridge Historical Dictionary of Disease*, p. 353.

⁵⁰ Robert Robertson, *Observations on Jail, Hospital or Ship Fever, from the 4th April 1776 until the 30th April 1789 made in various parts of Europe and America and on the Intermediate Seas* (London, 1789), unpaginated.

⁵¹ Rodger, *The Command of the Ocean*, pp. 308 and 314.

⁵² TNA, ADM 1/312, Admiral Byron to Admiralty, 7 January 1779 and 4 February 1779.

of fevers had increased because the men brought their filthy bedding and clothing on shore and no efforts had been made to launder them.⁵³

An outbreak on board the *Pompee* also offers a superb example of how a contagious fever could wreak havoc on a ship's crew. According to her surgeon, the first sign of the disease appeared when it attacked two men 'who were in the habit of frequent intoxication.'⁵⁴ Their symptoms consisted of vomiting, a foul tongue, quick pulse and pain in the head, back and loins. One of the men died the following day, while the other, in the interest of the remainder of the crew, was sent to sick quarters at Dartmouth. Within a week, several other seamen from the ship were taken ill with typhus and numbers increased on a daily basis. The ship was fumigated in order to purify the air and the crew continued to use 'windsails of large dimensions' down the hatchways. In spite of the efforts made to impede its circulation, it appeared as though nothing could stop it. James Wilkes, the surgeon, deduced that the fever originated in the men's filthy bedding which was ultimately destroyed.⁵⁵ Measures such as destroying soiled slops and bedding once the men contracted typhus was no solution for the problem.

James Lind noted the disease seemed to be most prevalent amongst impressed men. Typically, pressed men were immediately put into a guardship at the Nore in close proximity with other pressed men. If one of them was carrying the disease, as was often the case, he conveyed the infection on board transmitting it to the remainder of the men. To combat the spread of typhus, Lind proposed the use of 'receiving ships' to accept impressed men prior to their being sent to the guardship. These receiving ships would be furnished with slops, shirts, bedding and all necessary seamen's apparel as well as soap, tubs and any other tools for bathing the men and a room for fumigating their clothing.⁵⁶ If the Admiralty denied the request for receiving ships, Lind suggested an alternative measure to keep the guardship more hygienic. He felt that burning tobacco quickly followed by lighting charcoal fires strewed with brimstone would reduce infectious diseases on board. Lind knew 'and experienced efficacy of these processes' and it appeared to him 'that fire and smoke are the most powerful agents for annihilating infection.'⁵⁷ Gilbert Blane concurred with Lind's proposals especially with regard to raising the levels of cleanliness of the seamen's clothing. 'As clothing is not the gift of nature, being left to man's own reason,' he said 'it is subject to caprice, and thereby productive of inconvenience and

⁵³ TNA, ADM 1/312, Admiral Byron to Admiralty, 2 April 1779.

⁵⁴ NMM, ADM/F/30, James Wilkes to Sick and Hurt, 2 April 1800 and 30 April 1800.

⁵⁵ Ibid.

⁵⁶ Lind, *A Treatise of the Scurvy*, unpaginated.

⁵⁷ Ibid.

disease.⁵⁸ The navy agreed with both Lind and Blane and took up the use of receiving ships (also referred to as ‘slop ships’) in 1781 and used them to clean and clothe impressed men prior to their joining the fleet.

Diarrhoea, Flux and Dysentery

Food preservation and storage practices on board sailing ships in the eighteenth century were rudimentary. Meat was typically salted and packed into large casks for distribution to ships. Once on board, these casks were susceptible to both heat and vermin infestation and often served to the seamen in that condition. The storage of provisions was far from ideal, but there was little in the way of an alternative. Water supplies were stowed in a similar way and equally prone to spoiling. Fresh vegetables were not customarily available during long voyages and were generally limited to the seamen’s time in port. Taking all of these factors into consideration, it is not surprising that the seafarer’s diet lacked vitamins and nutrients essential to regulate their digestive systems and bowels.⁵⁹ As a result of consuming this standard of provisions, seamen often suffered from diarrhoea, fluxes and dysentery.

Of the three complaints, diarrhoea was the most common and straightforward bowel complaint to treat on board ship. Seamen were considered to be suffering from diarrhoea if they had three or more loose stools in a single day. Simple diarrhoea resulted from an intestinal infection from either a viral, bacterial or parasitic enteropathogen. Generally, infection circulated through the fleet mainly due to improper handling of food and/or contamination of water. The biggest threat to the sufferers was the risk of severe dehydration. No legitimate cure for diarrhoea existed and the sick were placed on a restricted diet and given medicines to settle the intestinal spasms. Often it was the case that diarrhoea eventually became more troublesome by evolving into flux or dysentery.

Fluxes were also a frequent bowel complaint and often appeared alongside fevers. Writing in 1790, a naval surgeon by the name of Frederick Thomson reckoned the flux was chiefly caused by the ‘coarse, indigestible food [seamen] live on and the warm, humid air they breathe in betwixt decks.’⁶⁰ In reality, fluxes were caused by a strain of bacteria invading

⁵⁸ Blane, *Observations on the Diseases of Seamen*, unpaginated.

⁵⁹ See Appendix 3 for the daily allowance of provisions allowed for each man in the navy.

⁶⁰ Frederick Thomson, *An Essay on the Scurvy: shewing Effectual and Practicable means for its Prevention at Sea. With some Observations on Fevers, and Proposals for the more Effectual Preservation of the Health of Seamen* (London, 1790), unpaginated.

the mucosa of the large intestine resulting in mucus secretion, oedema, superficial ulceration and bleeding.⁶¹ Men who were diagnosed with simple fluxes experienced:

a frequent and plentiful discharge of thin, watery, frothy, greasy or blackish stool, sometimes mixed with the excrements, and sometimes not, but without blood, and without any inflammation or ulcers in the bowels...it is frequently attended with gripings, but not always...The patient is weak, makes but little water, has a poor appetite and is sometimes feverish.⁶²

It is highly probable that severe outbreaks of flux were the bacillary type, suggesting men were exposed to contaminated or impure water.⁶³ More serious was the 'bloody flux', or dysentery, which differed slightly from the simple flux as there was a discharge of blood in the stool. Other symptoms of dysentery were:

frequent purging, preceded by severe griping pains in the lower part of the belly; constant inclination to go to stool, without a natural discharge; and is distinguished from diarrhoea by a straining and uneasy feel, as if the bowels were not emptied, and by the slimy and sometimes bloody stools. In severe cases the patient feels a bearing down, as if the bowels were falling out, and sometimes a part of the intestines does actually protrude. The stools consist of mucus or slime, often streaked with blood; when large quantities of blood are lost, it is a dangerous symptom. Seamen often suffer severely from this complaint, which is much more prevalent in hot climates than in cold ones, especially in the rainy seasons.⁶⁴

Typically these symptoms were also occasioned with inflammation of the intestines and a hard, strong pulse. Captain Cook's voyages, which are noted for the meticulous attention paid to cleanliness and crew health, lost twenty-three men to the bloody flux during the first voyage.⁶⁵ His ships made a brief stop at Prince's Island to take on fresh water and food and within weeks of departing the crews were dangerously ill with dysentery being 'poisoned by the bacteria that infested those supplies.'⁶⁶ As G.J. Milton-Thompson pointed out, dysentery 'was more likely contracted ashore, for the ship's company would undoubtedly have built up a degree of immunity to the micro-organisms that flourished in

⁶¹ Kiple (ed.), *The Cambridge Historical Dictionary of Disease*, pp. 43-44.

⁶² Anonymous naval surgeon, *The Ship-Master's Medical Assistant; or Physical Advice to all masters of ships who carry no surgeons; particularly useful to those who trade abroad in hot or cold climates. Containing a brief description of diseases, especially those peculiar to seamen in long voyages. With a concise method of cure, the result of many years practice and experience in all climates* (London, 1777), unpaginated.

⁶³ Allison, *Sea Diseases*, p. xxi.

⁶⁴ Pawley, *The Seaman's Medical Guide*, unpaginated.

⁶⁵ For examples see K.J. Carpenter, *A History of Scurvy and Vitamin C* (Cambridge: Cambridge University Press, 1986); Glyn Williams, *Death of Captain Cook: A Hero Made and Unmade* (London: Profile, 2008).

⁶⁶ Vanessa Collingridge, *Captain Cook: The Life, Death and Legacy of History's Greatest Explorer* (London: Ebury Press, 2003), p. 243.

their own food supplies.’⁶⁷ So when men arrived in the West Indies after a long voyage and were exposed to fresh fruits (especially coconuts) and generous supplies of new alcohol they became far more vulnerable to dysentery, fluxes and diarrhoea.

All three diseases had the potential to be fatal. Dysentery was the most likely to kill seamen because of the severe nature of the symptoms. Prevailing medical theory of the day typically accused ‘putrid blood’ as the cause of dysentery. Although John Coakley Lettsom, a naval surgeon who spent time in the West Indies during the middle of the eighteenth century, blamed, ‘fear and other passions of the mind’ as the catalyst for bowel complaints and also claimed that thunder and lightning frightened some men into experiencing diarrhoea.⁶⁸

Seafarers’ diets hardly changed until food preservation methods advanced. Storing fresh, clean water remained problematic for some time especially when it was gathered from unsanitary sources which ensured that fluxes and dysentery remained a plague on naval service well into the nineteenth century and beyond. So difficult was it to provide armies and navies with provisions free from bacteria, that diarrhoea and dysenteries remained problematic up to and including World War I. When medical understanding in the twentieth century could scarcely control outbreaks among large groups of men, it demonstrates just how challenging diarrhoea and dysentery were to control in the eighteenth century.⁶⁹

Scurvy

Scurvy was an accepted inevitability on board ships which spent long periods of time at sea in the eighteenth century. In centuries past, when ships were limited to local waters and short voyages, scurvy was not an issue. Once British colonies were established in most of the world’s oceans, ships were obliged to make lengthier sea voyages. Although expansion occurred at a rapid pace, the same could not be said for food preservation technology. Seamen on long voyages were principally supplied with salted meats, casked cheese, biscuit and casked water, all of which frequently spoiled. Consuming a diet mainly consisting of these foodstuffs triggered outbreaks of scurvy because the provisions were deficient in a

⁶⁷ G.J. Milton-Thompson, ‘Two Hundred Years of The Sailor’s Diet’ in J. Watt, E.J. Freeman and W.F. Bynum (eds.), *Starving Sailors: The influence of nutrition upon naval and maritime history* (Greenwich: National Maritime Museum, 1981), p. 31.

⁶⁸ John Coakley Lettsom, *Of the Dysentery or Flux* (London, c1767), unpaginated.

⁶⁹ For examples see Jack E. McCallum, *Military Medicine: From Ancient Times to the 21st Century*, (Santa Barbara: ABC-CLIO, 2008), p. 109; R.S. Bray, *Armies of Pestilence: The Effects of Pandemics on History* (Cambridge: James Clarke, 1996), p. 191.

number of essential vitamins and nutrients. There has been a great deal of work done recently on the history of scurvy in the Royal Navy and, although they prove popular, they consistently overestimate the problem and attribute a greater number of dead to the ravages of scurvy when this simply was not true.⁷⁰ N.A.M. Rodger maintains that a number of sources put the total number of British seamen dead from scurvy in the eighteenth century around one million – ‘a figure which implies that every man who ever served in the navy died of scurvy approximately twice.’⁷¹ Real killers in the navy were fevers, fluxes and dysenteries, although it is not unknown for scurvy to be the cause of death. Scurvy debilitated ships’ crews and weakened their immune systems sufficiently for the men to become susceptible to other diseases that ultimately proved their demise. In his *Treatise of the Scurvy*, Lind brought this last point home when he confirmed scurvy’s potential to produce ‘putrid fevers, pleurisies, the jaundice and violent rheumatic pains...and sometimes it occasioned an obstinate costiveness, which was generally attended with a difficulty of breathing.’⁷²

Symptoms of scurvy first made their appearance roughly six to eight weeks after fresh provisions were expended (assuming the men were healthy when they boarded their ship) and were easily identifiable to the ships’ surgeons. If the seamen were already of a weak constitution, the scurvy could take hold much sooner. First the seamen suffered from swollen and bleeding gums which began to deteriorate until their teeth eventually fell out. While their condition worsened, their limbs and joints stiffened and ached, they haemorrhaged around their hair follicles and blood trickled from their eye sockets and nostrils while their vomit also contained blood. Because vitamin C is necessary for the body to produce collagen which continually glues scar tissue together, seamen with wounds which had been healed for years found they reopened (usually referred to as scorbutic ulcers), while fractured bones that previously mended broke apart.⁷³ A particular case was recorded by Lind:

...there was a remarkable instance on one of the invalids on board the *Centurion*, who had been wounded above fifty years before [at] the Battle of the Boyne; for though he was cured soon after, and had continued well for a great number of years past, yet on his being attacked by the

⁷⁰ For examples of recent works see Stephen R. Bown, *The Age of Scurvy: How a Surgeon, a Mariner and a Gentleman helped Britain win the Battle of Trafalgar* (Chichester: Summersdale, 2003); David I. Harvie, *Limeys: The True Story of One Man’s War against Ignorance, the Establishment and the Deadly Scurvy* (Stroud: Sutton, 2002). N.A.M. Rodger, *The Wooden World: An Anatomy of the Georgian Navy* (London: HarperCollins Publishers, 1988), p. 100.

⁷¹ Rodger, *The Command of the Ocean*, p. 308.

⁷² Lind, *A Treatise of the Scurvy*, unpaginated.

⁷³ Joan Druett, *Rough Medicine: Surgeons at Sea in the Age of Sail* (New York: Routledge, 2000), p. 143.

scurvy his wounds, in the progress of his disease, broke out afresh, and appeared as if they had never been healed.⁷⁴

William Hutchinson, a privateer captain, described his own experience with scurvy:

...after being about four months in our passage...after eating a hearty breakfast of salt beef, I found myself taken with a pain under my left breast, where I had formerly received a dangerous blow. From this time the sea scurvy increased upon me, as it had done upon many others...[who] became black in their armpits and hams, their limbs being stiff and swelled, with red specks...I pined away to a weak, helpless condition, with my teeth all loose, and my upper and lower gums swelled and clotted together like a jelly, and [that] bled to that degree, that I was obliged to lie with my mouth hanging over the side of my hammock, to let the blood run out, and to keep it from clotting so as to choke me.⁷⁵

Although older, more seasoned sailors did not understand the nutritional particulars of what caused scurvy to appear, they knew it was a result of their salted meat diet. When ships reached land after a long voyage, the purser typically procured and issued fresh meat and vegetables as ‘costly and troublesome though it was’, which essentially eliminated scurvy in the ships who were lucky enough to receive it.⁷⁶ In the West Indies, the Jamaica squadron regularly received fresh meat while the ships on the Leeward Islands station were obliged to keep to their salted meat by Admiralty orders. Thomas Pye, writing from Antigua in 1766, expressed his displeasure with the lack of fresh food declaring that some men of his squadron who had served there for more than three years ‘have never tasted a bit of fresh provisions’ and were suffering from scurvy as a result. As he was ‘credibly informed they are allowed it at Jamaica’ he desired his men be given ‘the same indulgence.’⁷⁷ Although the Admiralty realised that supplying fresh meat in the Leeward Islands would come at a high price since it was not readily available on the island, they eventually agreed for its provision. Robert Grant, the victualling contractor for that squadron, suggested that rather than procuring fresh beef or mutton at a high cost, he could provide pork and turtle meat at a more reasonable rate.⁷⁸ Admiral Rodney sang the praises of turtle meat saying ‘nothing would so effectually eradicate that inveterate disorder [scurvy].’⁷⁹ He also felt that the seamen would be thankful for any fresh provisions, so if turtle and pork were cheaper, then the Admiralty would do well to accept Grant’s offer.

⁷⁴ Lind, *A Treatise of the Scurvy*, unpaginated.

⁷⁵ William Hutchinson quoted in Tim Clayton, *Tars: The Men who made Britain Rule the Waves* (London: Hodder & Stoughton, 2007), pp. 120-121.

⁷⁶ Rodger, *The Wooden World*, p. 102.

⁷⁷ TNA, ADM 1/308, Vice Admiral Pye to Admiralty, 9 November 1766.

⁷⁸ TNA, ADM 99/47, Sick and Hurt Minutes, 26 November 1771.

⁷⁹ TNA, ADM 1/239, Sir George Rodney to Admiralty, 14 September 1774.

While fresh meat helped to replenish nutrients deficient in sailors, it was certainly not enough to ward off scurvy completely. Fresh fruit and vegetables were distributed to crews sporadically making it difficult to provide consistent relief from the disease. The navy continued to suffer from scurvy until the 1790s when they agreed to distribute citrus juices to squadrons, especially those ordered on foreign service and ships at sea for extended periods of time. Until then, scurvy periodically hindered operations and weakened the seamen's immune systems enough to allow other diseases to strike.

Ulcers

Debilitating to such a degree as to render men incapable of standing, ulcers were likely to trouble seamen at any point during their service with the navy. The eighteenth century term 'ulcers' constituted a number of complaints with one inherent quality; an opening in the skin which frequently oozed puss or a similar discharge. There were several varieties including scorbutic, venereal and general ulcers which typically appeared on areas of skin that had been cut or wounded. They ordinarily developed on the seamen's lower extremities and took a great deal of time to heal. The most common and troublesome ulcers were sores which formed on the legs after seamen suffered wounds or bruises, or over swollen veins. Thomas Spencer Wells observed that it was fairly routine for ulcers to heal and break out again 'especially in those [seamen] who drink freely and in persons enfeebled by improper food.'⁸⁰

Aside from venereal ulcers, the main cause of the ailment was the seamen's diet. Without adequate nutrition, their skin did not heal properly and resulted in the long-term debilitation of men in the navy. Non-venereal ulcers were not fully understood by naval surgeons; most assumed they were very local diseases on the body and did not necessarily recognise they represented a larger problem. Seamen wore wet, salty clothes which stuck to their skin and were under constant friction, and once their immune system had broken down sufficiently through the lack of fresh food, their skin became even more susceptible to eruptions. Ulcers were extremely painful and were generally surrounded by redness and swelling which kept seamen on the sick list for extended periods of time. In his proposal for a cure, Dr Vance described what men with ulcers experienced:

...when a wound on a lower extremity is inflicted or when the skin is eroded or destroyed by any other cause some degree of inflammation soon takes place...The sore at this time exposes a greater surface, from

⁸⁰ Thomas Spencer Wells, *The Scale of Medicines with which Merchant Vessels are to be Furnished, by Command of the Privy Council for Trade* (London, 1851), unpaginated.

the general enlargement of the limb, and a thin discharge oozes from it which in the beginning is mild but as the disease advances becomes so acrid as to [erode] the surrounding parts. The [seaman] now begins to suffer from...increased frequency of pulse, rigor, thirst and lassitude...The surface of the sore at the commencement of these symptoms loses every appearance of health becomes flaccid and gangrene very often ensues. When this disease does not terminate in extensive mortification about the fourth day, a degree of inflammation takes place round the edges of the sore and in two or three days more puss is formed the gangrenous parts separate from the sound and the muscles of the limb appear uninjured. The pulse returns to its natural frequency, thirst and nausea disappear and trifling degree of debility only remains... Everything goes on well until the part begins to cicatrize when the same symptoms often return with increased violence...tendons and muscles destroyed which ultimately escape the loss of the limb and not unfrequently have loss of life.⁸¹

Writing in 1809, James Litle, a naval surgeon, deemed ulcers the most dangerous disease to seamen since they killed more men in the service compared to all others. He observed that once ulcers took ‘deep root among a ship’s company, it is, of all the diseases...the most difficult to eradicate.’⁸² On board the *Courageux*, Captain Hardy described a contagious ulcer that spread amongst the crew during their time spent in the West Indies. At first, two men fell ill with them, but that quickly increased to fifty-eight. Twenty-three of the men were in such an abysmal condition, they had to be left at Barbados when Hardy sailed. Charles Carr, the ship’s surgeon also reported on the state of the men, whom he immediately separated away from the healthy crew in order to curb the outbreak’s intensification. Carr claimed that in three of the cases, amputation was necessary, and according to his letter, a further one or two might have been essential among the men left at Barbados.

Medicines to treat ulcers were scarce and fairly non-effective. Surgeons attended the ulcerated men, but they ‘could not be of any considerable utility either in alleviating or removing their complaints.’⁸³ All that could be done for those suffering with ulcers was to apply a dressing to the affected areas to keep them as clean as possible. Surgeons recommended keeping the men in their hammocks for at least a few days and to cover the sore with wet lint and a dry outer covering.⁸⁴ They also believed that the longer the limb could be rested, the sooner ulcers healed. As most ulcers remained on the skin for long periods of time the men were typically ‘rendered useless to the public service, to themselves

⁸¹ NMM, ADM/E/47, George Vance to Admiralty, 19 November 1799.

⁸² James Litle, *An Essay on the Nature and Treatment of the Malignant Contagious Ulcer as it Generally Appears in the British Navy* (London, 1809), pp. 1-2.

⁸³ *Ibid.*, p. 7.

⁸⁴ Wells, *The Scale of Medicines*, unpaginated.

and their families.⁸⁵ Unlike most diseases that were either treatable or that killed men in a relatively short time, ulcers continued ‘for many weeks and several [seamen were] ultimately turned out as incurable or suffer[ed] the no less afflicting alternative of having the limb amputated.’⁸⁶

Consumption

Consumption, to call it by its historical name, has afflicted the human population from time immemorial. Its name was derived from the observation that the disease seemed to consume people from within, beginning with a bloody cough, a fever and pallor. Today, the disease is more commonly known as tuberculosis. So little was known about consumption that medical men were unable to make the link between it and phthisis, phthisis pulmonial and scrofula, which were all variants of the same disease. Lloyd and Coulter declined to include any of these diseases in their *Medicine and the Navy* since ‘the diagnosis...was so confused, and the treatment so elementary...that worthwhile comment is impossible.’⁸⁷ Despite their refusal to comment on the disease, too many seamen were troubled by the disorder to ignore it in this study.

Consumption was easily identifiable in seamen as they habitually coughed up blood and experienced difficulty in breathing.⁸⁸ Surgeons believed that the disease resulted from an ulcer of the lungs ‘of which an old stubborn neglected cough [was] generally the cause.’⁸⁹ Patients normally complained of pains in their sides and breasts which were sometimes accompanied by a hectic fever. In addition to consumption’s typical symptoms of coughs, aches and pains, the patients radiated more body heat, their faces turned a red or florid colour and the sufferer experienced hot and restless nights. The cures employed to treat consumption were elementary and not much was offered in the way of relief.

Tuberculosis is a contagious disease and with the deplorable conditions on board sailing ships it became common among seamen. Roddis acknowledged that ‘frequent overcrowding [and] the lack of careful physical examination...permitted tuberculosis cases and carriers to be present in the [ships’] crews. Exposure to cold and wet; and the hardships endured, made this disease all too common in both the navy and the merchant

⁸⁵ NMM, ADM/F/29, Sick and Hurt to Admiralty, 2 November 1798.

⁸⁶ NMM, ADM/F/29, Dr Magennis to Sick and Hurt, 2 November 1798.

⁸⁷ Christopher Lloyd and Jack L.S. Coulter, *Medicine and the Navy 1200-1900*, vol 3 (Edinburgh: E&S Livingstone, 1961), p. 348.

⁸⁸ Zachary B. Friedenberg, *Medicine Under Sail* (Annapolis: Naval Institute Press, 2002), p. 127.

⁸⁹ Anonymous, *The Ship-Master’s Medical Assistant*, unpaginated.

marine.⁹⁰ While close quarters accelerated the spread of the disease, the surgeons' theory behind its contraction was off the mark. Gilbert Blane believed it was the result of exposure to cold air at night and said 'many pulmonic [afflictions] are caught by men falling asleep in the open air, on their watch.'⁹¹ Dr Trotter experienced salutary effects from placing men suffering from consumption in the lower hold of a ship where he reckoned the air was less oxygenated than common air and much warmer. He also noted distinct characteristics of men prone to contracting the disease: 'persons with narrow conformation of the chest, high shoulders, long neck, smooth skin, etc.'⁹² These attributes could not have predisposed anyone to consumption, and Trotter's observations further demonstrate the confusing nature of the disease.

So bad was the spread of consumption amongst seamen that Dr Finlayson reported in his *Essay...on the Means of Preserving the Health of Their Crews* that once the sea scurvy had been relegated to a minor illness, the diseases that continued to 'thin our ranks' were of an inflammatory nature including 'inflammations of the lungs and their membranes [and] consumptions.'⁹³ Despite the efforts of both Finlayson and a number of other doctors, the bacillae (*Mycobacterium tuberculosis*) responsible for tuberculosis was not identified until 1882 by Robert Koch, meaning seamen continued to suffer from the disease for some time.

Dropsy

One of the diseases seamen were less frequently prone to during service was dropsy. Mainly affecting men serving in hot climates, dropsy (better known by its modern-day name of oedema) developed on various areas on the body, but primarily the disease was focused in the abdominal region and closely resembled an obese belly. Dropsy is the result of an abnormal amassing of fluid which produced the 'swollen' and 'bloated' look usually caused by either congestive heart failure, liver failure, kidney failure or malnutrition (Figure 2.2). More specifically, when a patient suffers from dropsy, they experience an accumulation of fluid in their tissues when intracapillary pressure increases or when the blood's ability to remove water from tissues decreases.⁹⁴

⁹⁰ Roddis, *A Short History of Nautical Medicine*, p. 51.

⁹¹ Blane, *Observations on the Diseases of Seamen*, unpaginated.

⁹² Thomas Trotter, *Medicina Nautica: An Essay on the Diseases of Seamen*, 2nd edn (London, 1804), unpaginated.

⁹³ Robert Finlayson, *An Essay Addressed to Captains of the Royal Navy, and those of the Merchants' Service; on the Means of Preserving The Health Of Their Crews* (London, 1825), p. 4.

⁹⁴ Kiple (ed.), *The Cambridge Historical Dictionary of Disease*, p. 100.

Until the late eighteenth century, dropsy was treated predominantly with ineffective drugs. In the West Indies, physicians rejected the use of Peruvian Bark as a cure for they believed the medicament caused both jaundice and continued dropsy among the patients. Dr Lind chided some physicians' practices because they preferred Dr James's Fever Powder as a treatment which he deemed useless.⁹⁵ Other surgeons used the Sweet Spirit of Nitre or Cream of Tartar both of which were mild saline purgatives.⁹⁶

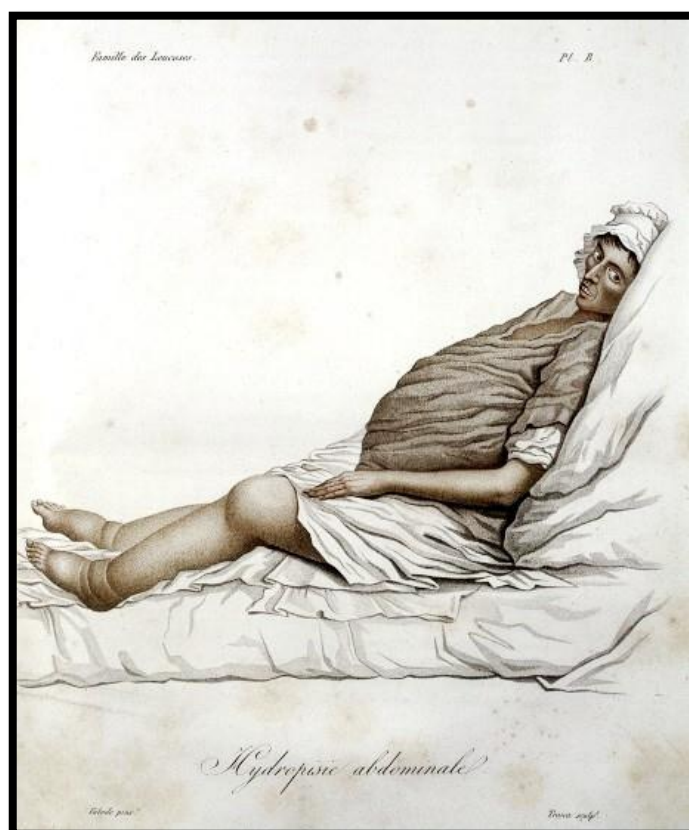


Figure 2.2 – Person Suffering from Dropsy⁹⁷

According to statistics compiled from hospitals in the West Indies at the end of the eighteenth century, dropsy was not the most prominent disease by far and only troubled a handful of seamen at any given time. Of all the cases documented in hospital, 28 per cent of men were discharged and sent back to work on their ships, 25 per cent were invalided back to England, 25 per cent died from the disease while 22 per cent remained in hospital for further treatment and their ultimate fate is not recorded.⁹⁸ It is probable that those who died were suffering from congestive heart failure (pulmonary oedema). Although dropsy

⁹⁵ Clayton, *Tars: The Men who made Britain Rule the Waves*, p. 275.

⁹⁶ William E. Court, 'Eighteenth Century Drugs for the Royal Navy' in *Pharmaceutical Historian*, vol 17, no 3 (September 1987), p. 3.

⁹⁷ Oedema c1817. Wellcome Library, London, Reference number L0013499.

⁹⁸ These figures were compiled from hospital musters filed at TNA in ADM 102/6, ADM 102/7, ADM 102/47, ADM 102/48, ADM 102/49, ADM 102/50, ADM 102/428, ADM 102/430, ADM 102/431, ADM 102/432, ADM 102/565 and ADM 102/566.

was not a leading disorder in the navy, it still caused a considerable number of men to leave the service when they were in short supply and difficult to replace. The best and most effective treatment available for seamen afflicted with dropsy was for the surgeons to provide fresh provisions and a restful place and where they could recuperate in the hope that swelling would reduce.

Gravel and Other Urinary Complaints

Urinary complaints were to be expected on board sailing ships. The combination of salted meats, stale water, laborious duties and liberal quantities of beer, wine and rum doomed the men's urinary tracts to a number of disorders. A frequent complaint was 'gravel'. Now referred to as kidney stones, gravel was diagnosed by the surgeon when a thick sediment settled from the patients' urine or when they passed small stones during urination. Seamen suffering from gravel experienced severe pain in their loins extending to the testicles and down the inside of the thighs, accompanied by feelings of sickness.⁹⁹ Thomas Spencer Wells, who served as a naval surgeon at Malta, considered gravel to be caused by over-eating and drinking with too little exercise and further maintained that anyone suffering from the more-serious red gravel should become a 'teetotaller, eat moderately, keep the skin clean and warm, the bowels open and take sufficient exercise.'¹⁰⁰

Men sent to hospital in the West Indies were given a routine treatment of poultices, warm baths, the application of hot flannels, cupping, blistering and bleeding which were administered until all the stones were passed and men no longer complained of abdominal pain. The most difficult and least frequent treatment for gravel was lithotomy, an invasive and dangerous surgery employed when stones were too large to pass naturally through the urinary tract.¹⁰¹ Surgeons were not overly keen to perform the operation as there was no anaesthesia for pain and it involved the participation of four men, rope to tie the patient down and the cutting of a very delicate area of the groin. One of the most famous sufferers of gravel was Samuel Pepys, who had experienced symptoms, often very painful, from a young age. In 1658, Pepys elected to undergo the risky surgical procedure to alleviate his agony. The stones were successfully removed and he resolved to hold a celebration every anniversary of the operation.

⁹⁹ Wells, *The Scale of Medicines*, unpaginated.

¹⁰⁰ *Ibid.*, unpaginated.

¹⁰¹ Jonathan Charles Goddard, 'The Navy Surgeon's Chest: Surgical Instruments of the Royal Navy during the Napoleonic War' in *Journal of the Royal Society of Medicine*, vol 97 (April 2004), p. 193.

To a lesser extent, men suffered from stricture (narrowing of the urethra) which was most likely the result of a viral or bacterial infection of the urinary tract and was considered by naval surgeons to be a venereal disease. Standard practice in the navy was to impose a charge on seamen diagnosed with venereals. They were ordered to pay 15s per cure or be mulct two weeks' pay.¹⁰² As men were reluctant to dispense with their money, they did not attend the surgeon for treatment of stricture straight away, they waited until the pain was unbearable, and by that time, stricture would have become much more severe. Medically speaking, stricture is instigated by a build up of scar tissue in the urethra as part of the body's natural defence, and the continual build up resulted in the narrowing or even closure of the passage. For those seamen who refused medical treatment when their symptoms first appeared on the grounds they were ordered to pay the surgeon, they were allowing their urinary problem to worsen.

Rheumatism

Laborious work on board sailing ships took its toll on sailors' bodies and resulted in a variety of complaints. Most prevalent were rheumatism and rheumatic disorders. Sailors were diagnosed with rheumatism when they complained of a long-term, chronic, debilitating ache affecting multiple joints. The most common joints where seamen experienced pain were the interphalangeal joints of the fingers brought on by hyperextension deformity.¹⁰³ Affected joints in the hands underwent increased pain over time and became red and swollen, making it uncomfortable for the sufferers to use them. The severe joint pain and swelling was sometimes, but not always, accompanied by a fever (rheumatic fever). Although surgeons recognised the effects arduous work had on seamen, they typically attributed rheumatism to exposure to cold, wet air followed by exposure to warmer temperatures. According to Spencer Thomas Wells, men serving 'in hot climates exercise under a powerful sun, followed by repose in the shade or some damp place' and in his estimation these conditions were 'very apt to produce rheumatism.'¹⁰⁴

Curing rheumatism was unachievable; the most surgeons could do was make patients comfortable by decreasing the swelling in their joints and reducing any accompanying fever. Surgeons attempted to treat the men with Dr James's Fever Powder, failing that, surgeons issued purgative powders. Seamen were ordered to remain in bed with their painful joints covered with flannel to ease the swelling and pain. Of the 525 cases of

¹⁰² Lloyd and Coulter, *Medicine and the Navy*, p. 357.

¹⁰³ Kiple (ed.), *The Cambridge Historical Dictionary of Disease*, p. 41.

¹⁰⁴ Wells, *The Scale of Medicines*, unpaginated.

rheumatism reported at West Indies naval hospitals during the time period of this thesis, 31 per cent were discharged back to work, 28 per cent were invalided, 6 per cent deserted from hospital, while only 3 per cent succumbed to the disease.¹⁰⁵ The remaining 32 per cent of sufferers continued in hospital until it could be determined whether or not they were able to return to duty. Until naval service was less physically demanding, seamen were always subjected to bouts of rheumatism and rheumatic fevers.

Ruptures

Similar to rheumatism, another ailment affecting seamen due to arduous service on board ships were ruptures (hernias). There was enormous physical strain in lifting a whole host of casks together with the exertion required to haul lines, therefore ruptures were an inevitability. A rupture was brought about in response to a flawed movement made by seamen which resulted in a portion of the bowels protruding from the lower abdomen or groin. Some pain was felt at the time of the accident with immediate swelling which increased in size while standing and reduced when patients laid down and placed pressure on the protruded area. Ruptures were liable to recur in men that had a history of them. There was very little chance of men dying from the disorder; the worst case scenario was they were sent back to England as invalids incapable of future naval service.

As with rheumatism, little could be done to reduce the rupture. In the first instance, patients were stabilised with diet and relaxation and kept in a flat position to determine whether or not the bowel would go back in place naturally. Should that have failed to work, patients were purged and bled and once the body became limp enough from the loss of blood, the rupture was returned to the abdominal cavity by digital manipulation.¹⁰⁶ If bleeding did not work on the patient, the distinguished physician William Hunter suggested that 'making the patient stand on his head and throw his legs over the shoulders of a strong man who may give him a shake or two sometimes answers the [problem].'¹⁰⁷ Once ruptures were reduced, surgeons applied a truss to the affected area. These instruments were designed to press the distended area back into the body core until the men could return to duty. Once the patients were fitted with a truss, the Sick and Hurt Board advised

¹⁰⁵ Please refer to Chapters 6 and 7 for the availability of hospital musters in TNA ADM 102 series at Jamaica, Antigua and Barbados at the end of the eighteenth century.

¹⁰⁶ Philip R. Mills, 'Privates on Parade: Soldiers, Medicine and the Treatment of Inguinal Hernias in Georgian England' in Geoffrey L. Hudson (ed.), *British Military and Naval Medicine 1600-1830* (Amsterdam: Rodopi, 2007), p. 159.

¹⁰⁷ Quoted in *Ibid.*, p. 159.

that those men ‘should not be obliged to hand or reef because the pressure they must meet with in that service would be very apt to force the intestines into the scrotum’ again.¹⁰⁸

Admiral Rodney, in particular, found ruptures a nuisance to the men of his fleet. Writing to the Admiralty while back in London for the recovery of his own health, he expressed dissatisfaction with the system of treating ruptured men. Seamen, according to him, were ‘extremely liable from the various exertions of their duty to the disorder called ruptures’ and as care was inadequate ‘these men [were] discharged...because the trusses now sent on board ships hardly ever prove[d] of the smallest benefit.’¹⁰⁹ Rodney was not the only man who disapproved of the trusses. Enclosed with his correspondence was a letter from Mr Hossack and Mr Taylor of the infirmary at Greenwich Hospital in which the two men criticised the current naval trusses used to treat ruptures claiming they were ‘little better than an iron hoop.’ As little could be done aside from manipulating the intestines back inside the body followed by the application of a truss, it appeared to surgeons that it was futile to send ruptured men to hospital when those spaces were better utilised by sick men who could be treated with medicine and a proper diet. Despite surgeons’ best efforts for relief, ruptures continued to plague the navy for as long as heavy lifting and strenuous exertion were part of their daily life.

Wounds

Although not strictly speaking a disease, wounds were an inherent danger on board an eighteenth century ship. Wound types can be broken down into two categories: those received during battle and those received during everyday duties. Battles are generally referred to more often in historical narratives, however the majority of sailors never experienced combat firsthand. This, therefore, made the likelihood of receiving battle wounds highly improbable. Most open wounds, fractures, broken bones and lost limbs resulted from the daily hazards on board.

Wounds received during battle were typically caused by gunshots, flying debris and sword lesions. Less commonly considered as a hazard of battle was the accidental explosion of gunpowder. Seamen involved in such an explosion generally bled to death before assistance was obtained largely due to the location of the surgeon and his mates in the cockpit area of the orlop deck during battle (one of the lowest parts of the ship). Gilbert Blane was an advocate of more stringent regulations for the carriage, storage and use of

¹⁰⁸ Ibid., p. 162. NMM, ADM/E/11, Admiralty to Sick and Hurt, 1 March 1744.

¹⁰⁹ TNA, ADM 1/314, Sir George Rodney to Admiralty, 7 December 1781.

gunpowder to avoid these unnecessary mishaps during battle. According to him, during the battles of 1780 and 1781 in the West Indies ‘one-fourth part of the whole killed and wounded was from this sort of accident.’¹¹⁰ However once stricter regulations were implemented in the Leeward Islands’ squadron, Blane reported that during the Battle of the Saintes ‘only two accidental explosions of gunpowder happened in the whole fleet, by one of which one life was lost, by the other, two.’¹¹¹ He attributed the stricter regulations to both experience and ‘habits of caution acquired in the course of war’ and partially to ‘improved methods in working the artillery introduced by Sir Charles Douglas.’ As Blane kept meticulous records, it is worth briefly quoting the total of his wounded and mortality figures from the Battle of the Saintes. According to him, the total number of men on board the thirty-six ships that made up the line of battle was 21,608. Of those men 243 were killed and 816 were wounded in battle. This equates to roughly 1 per cent of men killed and a little less than 4 per cent of men wounded, although some of those eventually healed and returned to duty.

Not all wounds were the result of enemy action. The very nature of the seamen’s occupation precipitated a risk to their safety. Aside from abrasions or cuts, fractures were the next most frequently occurring complaint. According to Thomas Woodall, author of *The Surgeon’s Mate* and noteworthy seventeenth century naval surgeon, the first course of action for fractures was to restore ‘the bone disjoyned’, and to keep the divided ends together until the fracture healed.¹¹² Once the bone had been put back into its original position, the limb was immobilised with makeshift splints and bandages. Aboard the US packet *Dreadnought*, fractures were dealt with in the same fashion as their British counterparts. The captain described his own injury which included an open fracture of his leg just below the knee and his near-amputation. According to his account, he and some of his crew:

...tried to force the bone back into place while the leg was extended; but did not know that bending the knee would relax the muscles so that the strength of a child would have sufficed...I became so exhausted from the pulling that they desired...it was necessary for me to perform the operation [amputation] as no one else would undertake it...I gave my instructions for the taking up the arteries in case I became too weak...At

¹¹⁰ Blane, *Observations on the Diseases of Seamen*, unpaginated.

¹¹¹ Ibid.

¹¹² John Woodall, *The Surgeons Mate: A complete facsimile of the book published in 1617* (Bath: Kingsmead Press, 1978), unpaginated.

this juncture the second officer in whom I had much confidence...begged me not to amputate.¹¹³

The decision was made not to amputate the captain's fractured leg and he was eventually treated upon their arrival in the Azores where 'the exposed bone was positioned and held by wire passed through drill holes in the bone and lashed.' Amazingly the leg never became infected nor did it turn gangrene. This was unusual for men who endured similar injuries and subsequent treatments since the limbs typically became one or the other. Unless limbs became gangrenous, amputation was not encouraged especially above the knee since it more often than not resulted in death from excessive blood loss. When surgeons resorted to amputation of an appendage, it was customary practice to remove more of the bone and reserve flesh in order to make a 'flap'. The excess skin mended to itself and created a stump where a wooden peg could be fitted if need be. Cauterising the wound with a hot iron or boiling oil kept the haemorrhaging to a minimum, although as the eighteenth century progressed it was more common to use a ligature to control the bleeding. It is also worth bearing in mind that during this period, anaesthesia was not used and amputations, as well as all other surgeries, were performed without it.¹¹⁴

Other types of wounds from accidents resulted from seamen falling from the rigging while working aloft, when shifting cargo or less-frequently when men aboard the same ship became involved in fights with one another. Wounds commonly experienced in warmer climates such as the West Indies included serious cases of sunburn and the all-too-common occurrence of men being struck by lightning. The latter proved to be fatal on board a number of ships including the *Topaze* stationed in the West Indies as reported by Rear Admiral Duckworth. According to his letter, the ship's mizzen mast was 'shivered by lightning' which 'extended itself to two of the powder horns in the captain's cabin whereby Mr Scott became so serious a [sufferer]...from the splinters to lose two of his teeth and his hearing, and to be otherwise much disfigured.'¹¹⁵ Apart from Scott's wounds, a marine was killed and another three men wounded. Even James Lind recognised the danger from lightning strikes claiming 'accidents from lightning are frequent on ship board owing to the

¹¹³ Samuel Samuels, *From the Forecastle to the Cabin on the Famous Packet Ship, Dreadnought* quoted in Friedenbunrg, *Medicine Under Sail*, pp. 26-27.

¹¹⁴ Porter, *Blood and Guts*, p. 124. Although anaesthesia was not available, there were analgesics at the surgeons' disposal including opium, hashish and alcohol. The breakthrough in anaesthetics came in January 1842 when William E Clarke, a practitioner from New York, extracted a tooth using ether. Knowledge of Clarke's success spread to Europe where ether was administered to amputation patients. Ether was dangerous, and it was quickly replaced with the safer chloroform.

¹¹⁵ TNA, ADM 1/252, Sir John Thomas Duckworth to Admiralty, 28 July 1802.

height of the masts.’¹¹⁶ In order to keep men safe during dangerous squalls, Lind advised that men should be assigned duties which did not expose them to the stormy weather.

Whether confronted with battle wounds or routine shipboard wounds, surgeons were expected to be prepared to manage the men with a three-stage treatment process. The initial stage was ‘first-aid’ which consisted of cleaning the wound, the removal of any foreign bodies including shrapnel and the arrest of haemorrhages. Secondly, it was expected that within a few days the laceration would invariably produce a discharge mainly composed of ‘laudable pus’ which indicated the evacuation of any remaining harmful material. Finally the wound progressed into its final stage of healing where it mended sufficiently enough for the men to return to work assuming their open wound had not become infected.¹¹⁷ Whether caused by battle or by accident, wounds were difficult to treat and recuperation was difficult as the lack of sterile environments encouraged infection.

Less Frequent Complaints

Aside from the abovementioned complaints which were the most frequently occurring, there were other diseases which affected sailors in the eighteenth century. Most notable were the ever-present venereal diseases that plagued men particularly immediately after their ships left port. Fraternising with prostitutes before a voyage or while on shore-leave resulted in a considerable number of seamen suffering from both syphilis and gonorrhoea. This study refrains from a thorough investigation into venereal diseases as they have been reported on in most medical histories and cannot be added to in any great detail.¹¹⁸ It is enough in terms of this study to speak only of the most common types affecting sailors of the day. Syphilis was by far the most dreaded and widespread. The disease worked in three stages, the first of which was the appearance of lesions (chancres) around the genitalia following an incubation period of a few weeks. Left alone, the lesions healed by themselves in two to six weeks. That stage was followed by a brief latent period and afterward the second stage began, characterised by the appearance of disseminated lesions on the skin and in the internal organs. The final stage, which did not appear in all cases, was typified by a small, rubbery, benign tumour which developed anywhere in the body. Alternative names for this type of disease used in contemporary publications included *lues*

¹¹⁶ James Lind, *An Essay on the most Effectual Means of preserving the Health of Seamen*, 2nd edn (London, 1762), unpaginated.

¹¹⁷ Lloyd and Coulter, *Medicine and the Navy*, pp. 364-365.

¹¹⁸ For examples see Daniel McNabb, ‘Notes on Venereal Diseases in the Royal Navy’ in *The Journal of Hygiene*, vol 22 (June 1922): F.E. Willmott, ‘Treatment of Venereal Diseases in The Royal Navy’ in *Journal of Royal Naval Medical Service*, vol 54 (1968): Jonathan Charles Goddard, ‘Genitourinary Medicine and Surgery in Nelson’s Navy’ in *Postgrad Medical Journal*, vol 81 (2005): Linda E. Merians, (ed.), *The Secret Malady: Venereal Disease in Eighteenth-Century Britain and France* (Lexington: University Press of Kentucky, 1996).

venerea ('venereal infection') and *morbus gallicus*, though the latter was less frequently used as the century progressed. Closely related to syphilis was yaws, although yaws were not necessarily a venereal disease. Yaws are endemic in tropical areas and generate the appearance of lesions on the body just like syphilis. It differs from the venereal disease in that it does not normally attack the internal organs and is contagious in more ways than just through sexual contact; skin-to-skin contact with someone having an infected lesion is enough to transfer the disease. The last form of venereal disease affecting sailors was gonorrhoea which was characterised by a milky pus discharge issued from the penile opening and discomfort during urination. All of these venereal diseases were treated by ships' surgeons with a standard charge for cure. As mentioned, because cures cost 15s, many men opted for quack cures or disregarded symptoms until they became chronic, prompting abolition of the charge in 1795.¹¹⁹

Other non-venereal diseases that seamen suffered from included hepatitis (an inflammation of the liver resulting from a variety of causes), ophthalmia (an inflammation of the eye, especially of the conjunctiva, but also encompassing blindness), asthma, debility (general loss of strength or a feeling of being feeble), epilepsy (repeated seizures), scrofula (an obsolete word describing a form of tuberculosis), pleurisy (inflammation of the pleura cavity surrounding the lungs), cholera, nephritis (inflammation of the kidney), dyspepsia (difficulties in digestion), palsy (paralysis of a body part and accompanied by shaking), catarrh (inflammation of the mucous membranes, especially in air passages), lumbago (historical name for osteoarthritis) and apoplexy (historical term for a stroke). All of these diseases, among others, affected sailors occasionally, but none of them as frequently as fevers, bowel afflictions and ulcers. Nevertheless, these ailments managed to debilitate a reasonable number of men who were more useful to the service if they were healthy.

Conclusion

With such a great number of diseases debilitating seamen during the eighteenth century, it is a marvel the navy proved so effective in opposing its enemies. Fortunately for the British, their opponents suffered from the same diseases, and often, the latter were more severely afflicted. Even when surgeons were able to ascertain the causes of certain diseases, their remedies were not successful and therefore very little could be done to alleviate suffering aside from ineffectual medicaments and bed rest. Some of the more

¹¹⁹ Roger Morriss, *The Foundations of British Maritime Ascendancy: Resources, Logistics and the State, 1755-1815* (Cambridge: Cambridge University Press, 2011), p. 253.

dangerous diseases in the West Indies were yellow fever and malaria which, at times, forced a considerable number of men onto the sick list. Some of those men suffered so severely that they swiftly succumbed to the fevers. Figures from Chapter 4 in this thesis demonstrate the average number of sick men on board ships in the West Indies during selected years while Chapters 6 and 7 provide statistics regarding the disease types as well as sickness and mortality rates for seamen sent to hospital for treatment. The number of sick men in that region prompted both the Admiralty and the Sick and Hurt Board to order alterations to the navy's system of care. Because such a considerable number of men were diagnosed with fevers in the tropics, the Board considered the enhancement of hospital facilities of the utmost importance. Even commanders and surgeons on station took a vested interest in bettering the medical service by procuring additional medicines and fresh provisions when necessary, ensuring sick men rarely went without.

By the end of the eighteenth and into the early nineteenth century a number of diseases had been reined in to such an extent that they were no longer distressing the fleet mainly due to the efforts of the navy's administration and surgeons. With the introduction of 'slop ships' in 1781 and the issue of lemon juice in 1795, the navy suppressed two of the foremost ailments: typhus and scurvy. Gilbert Blane confirmed the good effects of suppressing so many diseases. He claimed that the total number of deaths as a ratio of numbers borne on warships fell from 1 in 15.4 between 1776-1780 to 1 in 29.58 between 1810-1812.¹²⁰ The savings in manpower unquestionably made improved capacity for future naval operations during the remainder of the Napoleonic Wars.

¹²⁰ Duffy, 'The Foundations of British Naval Power', p. 74.

Chapter 3

Medicines, Cures and Trials

Disease was the ultimate adversary for the Royal Navy in the eighteenth century. The Sick and Hurt Board was established by the Admiralty to operate as the navy's medical branch and to oversee a multitude of medical duties which included disease prevention and control. This was no easy task for the Board because before 1793, the commissioners had no formal medical training; they were typically bureaucrats with experience serving in other government departments and were appointed solely to handle the finances of the office.¹ Although they possessed no medical education, the commissioners remained accountable for the medical decisions of that office. External assistance was available in the form of the Royal College of Physicians, the Company of Surgeons, the Society of Apothecaries and the Royal Naval Hospital at Greenwich which had an infirmary and physician.

The Sick and Hurt Board were expected to, as part of their duties, decide which medicines were suitable for use on board ships. They also were responsible for considering proposals for new medicines and remedies generated by surgeons and physicians. With their lack of medical training, they relied heavily on the Society of Apothecaries to guide them on what treatments seemed more reliable before exhausting funds on costly medicinal trials. When the Society felt there was merit in any of the proposals, the Board designed guidelines for a trial at either one of their naval hospitals or on board a select number of ships. They also arranged the procurement of a sufficient amount of medicine with instructions for its intended use from the proposer. Naval surgeons selected to undertake the trials were required to document its distribution to patients in a journal and report their findings to the Board. If particular medicinal trials were deemed a success, the Board and Society of

¹ Prior to the dates covered by this thesis, there had been medical men employed as Commissioners, particularly during the Seven Years' War. As Gradish points out, 'from 1756 onwards...the Admiralty thought that some medical men should be appointed to the Sick and Wounded Board. Their [the Admiralty's] choice of Dr James Maxwell in February 1756 illustrated this. The Admiralty told the S&WB that they had appointed Maxwell precisely because he was a person qualified in medicine and 'well acquainted with the nature of hospitals' and this was the type of person needed at this time to inspect the naval hospitals.' See Gradish, Stephen F., *The Manning of the British Navy during the Seven Years' War* (London: Royal Historical Society, 1980), p. 21. An additional medical man joined the Board later that year who had previously served as chief surgeon of Plymouth Hospital. At the conclusion of the war, it appears that medical men were a notably absence from the Board until 1793. For a more detailed account of the history of the Sick and Hurt Board, refer to Chapter 1.

Apothecaries altered the list of mandatory remedies carried in the surgeons' chests to include the beneficial remedy.²

Naval surgeons were required to carry a fixed supply of medicaments which were considered effective in the treatment of a variety of diseases. One of the first major overhauls to the surgeons' chests inventory came in 1741. At that time a select group of physicians belonging to the Royal College of Physicians and Dr Cockburn from Greenwich Hospital met to decide which medicines were efficacious and which were superfluous to the navy's needs. They collaborated to update the universal list for the chests while also designing one 'peculiarly adapted to voyages to Africa and the West Indies.'³ Once they had settled on the official list, it remained largely unchanged until the 1790s. A number of the more well-known medicines and cures included in the surgeons' chests at that time as well as a few of the more notable remedies trialled by the navy are discussed in this chapter.

There are some conspicuous absences from this study, most notable is mercury. For reasons cited in the previous chapter, this study refrains from a thorough investigation into venereal diseases and therefore mercury, the principal treatment, as they have both been reported on in most medical histories and cannot be added to in any great detail.⁴ Aside from a number of medical histories referencing mercury, documents from the Sick and Hurt Board hardly mention it except to say that it was mandatory to include in the surgeons' chest.⁵

Before delving into specific medicines and treatments, it is essential to briefly highlight the changes to medicine and medical practices at the end of the eighteenth century. Not only did the Enlightenment influence the ways in which surgeons and physicians viewed the source of diseases, it also impacted recommended remedies and treatments. During the Enlightenment in Britain, there was a gradual organisation of medical facilities through the

² The duties of the Sick and Hurt Board with relation to medicines, their trialling and their distribution can all be found in the their in-letters (NMM ADM/E series, TNA ADM 97 series), out-letters (NMM, ADM/F series, TNA ADM 98 series) and minutes books (TNA ADM 99 series).

³ NMM, ADM/E/9, Admiralty to Sick and Hurt, 22 April 1741.

⁴ For examples see Daniel McNabb, 'Notes on Venereal Diseases in the Royal Navy' in *The Journal of Hygiene*, vol 22 (June 1922): F.E. Willmott, 'Treatment of Venereal Diseases in The Royal Navy' in *Journal of Royal Naval Medical Service*, vol 54 (1968): Jonathan Charles Goddard, 'Genitourinary Medicine and Surgery in Nelson's Navy' in *Postgrad Medical Journal*, vol 81 (2005): Linda E. Merians, (ed.), *The Secret Malady: Venereal Disease in Eighteenth-Century Britain and France* (Lexington: University Press of Kentucky, 1996).

⁵ There were publications by naval surgeons that did reference mercury as a treatment for venereal diseases. See John Atkins, *The Navy Surgeon: Or, A Practical System of Surgery Illustrated with observations on such remarkable Cases as have occurred to the Author's practice in the Service of the Royal Navy. To which is added, A Treatise on the Venereal Disease, the causes, Symptoms, and method of Cure by Mercury: An enquiry into the origin of that distemper; in which the dispute between Dr Dover and Dr Turner, concerning crude Mercury, is fully considered; with useful remarks thereon. Also an appendix, containing physical observations on the Heat, Moisture and density of the Air on the Coast of Guiney, the colour of the natives, the sicknesses which they and the Europeans trading thither are subject to with a method of cure* (London, 1734), unpaginated.

establishment of a whole host of new non-university medical institutions, hospitals and dispensaries. Tröhler maintains that the dramatic rise in these facilities was due to ‘the insistent demand of energetic physicians...who sought a field for clinical work...The use of these new facilities...offered early opportunity for controlled mass observation.’⁶ New facilities were not the only conduits through which eighteenth century medical reform occurred. Both the army and navy contributed to this new approach to medicine relying heavily on observation, experience and some experimentation. In particular, the navy’s growing inclination toward erecting hospitals which included facilities for clinical research greatly enhanced their understanding and treatment of a number of diseases.⁷ Aside from hospitals, surgeons recognised the potential for observation and experimentation in a controlled environment, or the ‘closed populations’ that existed on board ships.

The concepts of observation and experimentation were not only limited to forward-thinking surgeons and physicians. During this period, the Sick and Hurt Board also began to subscribe to these concepts which will be explored in more detail in this chapter mainly through their insistence on medicinal trials and subsequent reports. While the navy did have a standardised medicine chest for surgeons, it was frequently looking to revise its contents in order to provide the most appropriate relief for seamen’s illnesses. Proposals for non-naval approved medicines frequently arrived at the Sick and Hurt Board office, and as previously mentioned, the commissioners made the decision whether or not to trial them in either their hospitals or on board ships. By using these methods, the navy was at the forefront of medical development in the eighteenth century.⁸ A number of the medications which the navy utilised and/or experimented with during that period are investigated in more detail below.

Portable Soup

One of the most utilised treatments in the mid-eighteenth century was the portable soup tablet. Portable soup was, in the simplest terms, a gelatinous form of the bouillon cube that was prepared by boiling bones and offal of oxen (the cartilage and tissue were required in the process since the end product was held together by a form of gelatine) which eventually turned into a beef broth. A number of vegetables were added to the broth on the day of preparation which was then allowed to simmer for hours until it reduced to a

⁶ Ulrich Tröhler, ‘Quantification in British Medicine and Surgery 1750-1830, with Special Reference to its Introduction into Therapeutics’ (PhD dissertation, University of London, 1978), p. 21.

⁷ Both Haslar and Stonehouse hospitals had facilities for clinical research. See Chapters 6 and 7 for information on naval hospital development both at home and abroad.

⁸ The army also employed similar methods, however, it is far to large of a subject to adequately cover here.

syrupe consistency and the vegetables were virtually dissolved into the mixture. The soup was then poured out into shallow trays and allowed to dry and harden until it could be carved into small tablets designed for easy storage. (Figure 3.1) Each of the tablets had the potential be stored for a number of years and still retain their full virtue. Once the tablets had been transferred on board naval ships, they were reconstituted by dissolving them in hot water and served to sick men as a sort of instant soup.⁹



Figure 3.1 – Tablet of Portable Soup with Admiralty Stamp¹⁰

Commander S. Moxly claimed that portable soup was first trialled in the navy on board HMS *Dolphin* in 1767. However, it was in fact first proposed by the Sick and Hurt Board in August 1756 for the use of convalescent seamen and marines of the fleet.¹¹ The Board supposed it would be particularly useful in scorbutic cases, although they recognised the potential for it to relieve other illnesses. There is some doubt as to the original inventor of portable soup, but it was most certainly not the creation of the Royal Navy. According to the Board, they had been introduced to the soup by Mrs Dubois who had been selling it in London for many years.¹² In order to produce large quantities of portable soup, enough for general distribution to all squadrons, they recommended using the offal of oxen

⁹ See Charlotte Mason, *The Ladies' Assistant for Regulating and Supplying the Table; being a Complete System of Cookery &c*, 6th edn (London, 1787), p. 199; Janet MacDonald, *Feeding Nelson's Navy: The True Story of Food at Sea in the Georgian Era* (London: Chatham, 2006).

¹⁰ Portable Soup Tablet, mid-eighteenth century. Copyright of the National Maritime Museum, Greenwich. Reference D5217.

¹¹ Commander S.H.S. Moxly, 'Scurvy' answer in *Mariner's Mirror*, vol 39 (1953), pp. 69-70.

¹² NMM, ADM/F/13, Sick and Hurt to Admiralty, 24 August 1756.

slaughtered by the Victualling Board and mixing it with mutton in order to make it 'more light and nourishing to the sick.'¹³ Within a week, the Admiralty eagerly responded praising the Board for their suggestion and agreed that all beef not salted for use in the navy was approved for this purpose. They required the Board to submit a plan to execute the scheme which needed to include the hire or purchase of a soup house because the Victualling Board's facilities did not provide enough room for production.¹⁴ Following a discussion with the Victualling Board and Dubois, the Sick and Hurt Board estimated that they would be able to procure 7,600 pounds weight of beef per week during the slaughtering season and, with the addition of mutton to the recipe, that would bring the total to 10,133 1/3 pounds weight. That amount would theoretically produce 1,031 1/3 pounds weight of portable soup per week, and an overall total of 26,376 2/3 pounds weight during the killing season.¹⁵ Next, the Board was obliged to find a suitable location to produce the portable soup. Dubois offered to oversee the entire operation and the use of her employees to manufacture the soup for no less than £80 per annum so long as the fat rendered from the process would be hers to sell elsewhere. Since she was already in the business of manufacturing portable soup, she only required the Board to rent a building with a large kitchen and an airing room to dry the soup cakes. The rest of the materials she intended to use from her personal business.¹⁶

The first batch of portable broth was ready for trial by February 1757. Only 100 pounds weight had been prepared, meaning it was enough for a single ship. It was proposed either to put it on board a ship bound for Nova Scotia or the West Indies.¹⁷ Rather than receiving only one testimony from the trial on an individual ship, the Admiralty required the quantity split between the *Devonshire* and *Somerset*. Within a fortnight, another quantity of soup was prepared, and by the end of March, a further batch was ready to be stowed on board a number of His Majesty's vessels. Observing the rapid rate of output, the Admiralty requested the Board determine what quantity of soup should be allowed for every 100 men in each ship for a four-month period so a bigger trial could be carried out. The Board estimated that 50 pounds weight of soup sufficed for that number of men which would provide a 'pint and a half each to ten men in a hundred for every day of the

¹³ Ibid.

¹⁴ NMM, ADM/E/17, Admiralty to Sick and Hurt, 31 August 1756.

¹⁵ NMM, ADM/F/13, Sick and Hurt to Admiralty, 14 September 1756. The Victualling Office's slaughtering season occurred between Michaelmas and Lady Day.

¹⁶ NMM, ADM/E/17, Admiralty to Sick and Hurt, 15 October 1756.

¹⁷ NMM, ADM/F/14, Sick and Hurt to Admiralty, 22 February 1757.

said four months.’¹⁸ The Board intended to gauge the feedback provided by surgeons and would adjust the quantity as required in time for the next slaughtering season.

By January 1758, feedback from trials of the broth began to trickle into the Sick and Hurt Board’s office. Mr Carruthers, surgeon of the *Burford*, asserted his overwhelming approval in an enthusiastic manner:

...under God the portable broth preserved many of the weakly and scorbutic patients, until our sickness obliged the ship to make for Portsmouth, where they were sent to their respective hospitals, 59 soldiers to Forton and 35 sailors to Haslar. Every British seafaring man in His Majesty’s navy ought to be thankful for this great refreshing benefit, so wisely calculated for a palatable diluting nourishment as well as to have a tender regard for the inventor and proposer of a thing so likely to support and revive the feeble...The intention is certainly noble, and I hope success will crown the design.¹⁹

Aside from the anti-scorbutic effects the Board hoped portable soup would have on sick seamen, they were also eager to know if it was efficacious against various other ailments. In 1759, Mr Poole, surgeon of the *Barfleur*, described a serious malignant fever that had taken hold of a large portion of the crew. According to Poole, ‘many of the men were reduced to the lowest ebb’, and were they not given the soup they ‘must have perished through a marasmus’ as most were refusing to eat every other food offered to them. He further praised the soup saying, ‘there is nothing in the navy instituted for the use of the sick equal [in] utility with the portable broth.’²⁰

As additional quantities of portable soup were produced and more feedback from trials was received, it was determined that proper instructions for its storage, distribution and accountability should be printed and circulated throughout the fleet.²¹ To further fortify the soup before serving it to the sick, it was suggested that surgeons could add, if necessary, rice, oatmeal, pearl barley or pease.²²

By 1763 the Board had sufficient soup in store, roughly twelve ton weight, and they proposed to distribute enough to each ship for use as a preventative measure in fending off the dreaded scurvy. According to their new plan, the soup could be served on days that meat was not.²³ The Admiralty was happy to agree to the trial of the portable soup as a

¹⁸ NMM, ADM/F/15, Sick and Hurt to Admiralty, 28 March 1757.

¹⁹ NMM, ADM/F/17, Sick and Hurt to Admiralty, 4 January 1758.

²⁰ NMM, ADM/F/19, Sick and Hurt to Admiralty, 24 January 1759.

²¹ The Sick and Hurt Board’s Instructions for issuing Portable Soup is located in Appendix 4.

²² NMM, ADM/F/17, Sick and Hurt to Admiralty, 3 February 1758.

²³ NMM, ADM/F/24, Sick and Hurt to Admiralty, 26 December 1763.

preventative measure, designating the *Tartar*, bound for the West Indies, to be given a large quantity of the desiccated tablets to see whether it would suppress the predictable appearance of scurvy on such a long voyage.²⁴ No results of that particular trial exist. It can be assumed that it was met with good results as the Admiralty insisted on conducting further trials on ships ordered to the Leeward Islands station. They claimed that ‘great advantages...have arisen from the issuing of [it] to the well men of His Majesty’s ships on long voyages.’²⁵ Fresh meat was not available to the men on that particular station, (although it was available on the Jamaica station) and the Admiralty was convinced that providing portable soup would have similar effects as consuming fresh meat.²⁶ Once the soup arrived on station and circulated amongst the ships, Vice Admiral Pye, Commander-in-Chief on the station, reported to the Admiralty that he ‘made the strictest scrutiny in the effects of the portable soup’ and found it ‘much liked by the people and very conducive to their healths in the preventing of the scurvy raging so much as it too often does in this country for want of fresh provisions.’²⁷ Due to Pye’s extremely positive review, arrangements were made to send out further supplies for use by both healthy and sick seamen.

Portable soup took on a vitally important role during the American War of Independence when fresh provisions were difficult to obtain. Writing in February 1776, Mr Arbuthnot, the Commissioner of the navy at Halifax, observed the ‘constant drain’ on supplies of fresh meat by the healthy troops at Boston. Since the price of those goods had risen exorbitantly since the start of hostilities, he recommended using the portable soup in lieu of paying high prices for meat. He surmised that 1,000 pounds weight at Halifax and 2,000 pounds weight at Boston would be adequate enough to sustain the troops until fresh provisions could be procured.²⁸ Even Lord Barrington, Secretary of War, requested that sufficient quantities be supplied to hospitals in North America.²⁹ Throughout the remainder of the war, large amounts of soup continued to be shipped overseas to answer part of the shortage of fresh victuals.

Perhaps one of the more crucial voyages on which portable soup was trialled was that of Captain Cook while he was in command of the *Discovery* and *Resolution* from 1776 to 1780. It has been recognised in various academic sources that the health of Cook’s crews during

²⁴ NMM, ADM/E/39, Admiralty to Sick and Hurt, 4 February 1764.

²⁵ NMM, ADM/E/40, Admiralty to Sick and Hurt, 23 March 1767.

²⁶ Ibid.

²⁷ NMM, ADM/E/40, Admiralty to Sick and Hurt, 21 January 1768.

²⁸ NMM, ADM/E/42, Admiralty to Sick and Hurt, 24 February 1776.

²⁹ NMM, ADM/E/42, Admiralty to Sick and Hurt, 29 July 1775.

his voyages was quite impressive given the medical knowledge of the time and his attention to cleanliness, hygiene and proper diet contributed to their overall good health.³⁰ Cook found the portable soup was a valuable provision when fresh foods were not available and was well-liked by his crews. When the *Resolution* returned to London after the five year expedition, the leftover portable soup tablets were forwarded to the Sick and Hurt Board so they could test how serviceable they were after such a lengthy voyage. They were pleased to report to the Admiralty that although those soup tablets had been stored in a box without a cover and in canisters which ‘appeared to have been opened and some remained loose in the box’, that those tested were found to still make, even in their unsuitably stored condition, good quality soup which retained much of its original virtue.³¹ Such resounding results further emphasised the importance of manufacturing the tablets as they were capable of remaining in storage until needed which could potentially be a number of years in the future.

The recipe for the soup remained the same for nearly ten years. Dr Nathaniel Hulme (a regular letter-writer to the Board who frequently proposed changes to medicines) recommended they enhance its effectiveness by adding potherbs of various kinds and plenty of onions. This addition, he surmised, would fully bring together ‘the nourishing power of the animal-food and the healing virtues of the vegetable kingdom, which will be thus strongly combined together and prove a most sovereign food for all convalescents at sea.’³² The Board considered the original method of preparation most effective and therefore dismissed Hulme’s proposal.³³ As far as they were concerned, the encouraging feedback they received from surgeons on all stations was reason enough to believe there was no need to alter a formula that ostensibly succeeded.

The only other real challenge to the portable soup came in 1781 from John Grafer and John Bessell when they proposed preparing a vegetable called borecole (otherwise known as kale) which could be dried, packed, sent on board ships and then made into a soup. They intended their concoction to be used in the same way as the portable soup to treat convalescing men and could also ‘keep the sailor healthy and free from scurvy at a trifling

³⁰ For examples see K.J. Carpenter, *A History of Scurvy and Vitamin C* (Cambridge: Cambridge University Press, 1986); Glyn Williams, *Death of Captain Cook: A Hero Made and Unmade* (London: Profile, 2008); Vanessa Collingridge, *Captain Cook: The Life, Death and Legacy of History’s Greatest Explorer* (London: Ebury Press, 2003).

³¹ NMM, ADM/FP/24, Sick and Hurt to Admiralty, 12 January 1781.

³² NMM, ADM/E/40, Admiralty to Sick and Hurt, 3 July 1766.

³³ NMM, ADM/FP/9, Sick and Hurt to Admiralty, 9 July 1766. According to Hulme, a large quantity of potherbs could be preserved in Beef Casks by layering the bottom with bay salt, then a layer of potherbs, followed by another layer of bay salt, then repeat. This was also not the end of Hulme on the subject as he wrote again to the Admiralty just over a month later advocating the use of vegetables on board ships even if they were not infused with the portable soup. NMM, ADM/E/40, Admiralty to Sick and Hurt, 15 August 1766.

expense.³⁴ Unfortunately, due to the large amount of water necessary to prepare the dried borecole, it was not deemed a practical provision for the navy to employ because the distillation of seawater had not been perfected and such large quantities of casked water could not be expended for that purpose. However, as scurvy persisted in the navy and, with war raging with America, the decision was made to trial the borecole's effectiveness. The results were unsatisfactory as the Sick and Hurt Board assumed since the amount of water required to prepare the dried vegetable proved too great and it was not adopted for general naval use.

Portable soup continued to be crucial to naval service well into the 1790s, even after the order to distribute lemon juice to prevent and cure scurvy was given. *Writing his Essay on the Scurvy: Shewing Effectual and Practicable Means for its Prevention at Sea* published in 1790, Frederick Thomson, a naval surgeon, considered the portable soup as advantageous as any other anti-scorbutic available. If it was 'seasoned with onions, eschalots, or garlic; rice with currants and sugar; sago, or salop [a thickening powder made from orchid roots], with sugar and wine; with the addition of lemon, orange, or lime juice, sowins or oatmeal slummery, with sugar and wine' he said, it produced 'the happiest effects.'³⁵ Production of the soup was still high in the mid-1790s and it was considered necessary to rent a larger house near the Victualling Office in Deptford where the soup could be prepared which would also double as warehouse to store lemon juice.³⁶ In 1797, Dr Gilbert Blane, at that time a Commissioner of the Sick and Hurt Board, recommended the re-issuance of rules relating to the soup to ensure its distribution alongside lemon juice demonstrating its continued significance to the health of the fleet. Towards the end of 1796 the Board requested the transfer of the entire operation to the Victualling Board 'as the principal ingredients used in making it were brought from their stores at Deptford' and now that it was stored with lemon juice (the responsibility of the Victualling Board) it made more sense for the Victualling Board to oversee its distribution.³⁷ In December 1803, the Board again requested the Admiralty re-assign management of the portable soup's preparation. For a second time, their request was denied as the Admiralty felt the current arrangement worked well. Its manufacturing was only handed over to the Victualling Board once the Sick and Hurt Board's duties were absorbed by the Transport Board in 1806. The soup itself remained exceedingly popular in the navy for the remainder of the Napoleonic Wars.

³⁴ NMM, ADM/E/43, Admiralty to Sick and Hurt, 12 February 1781.

³⁵ Frederick Thomson, *An Essay on the Scurvy: Shewing Effectual and Practicable means for its Prevention at Sea: With some Observations on Fevers, and Proposals for the more Effectual Preservation of the Health of Seamen* (London, 1790), pp. 107-108.

³⁶ NMM, ADM/F/26, Sick and Hurt to Admiralty, 7 March 1796.

³⁷ NMM, ADM/F/34, Sick and Hurt to Admiralty, 21 December 1803.

It also continued to be recommended for sick men well into the nineteenth century, although the introduction of canned meats slowly reduced the demand for the soup.

Elixir of Vitriol

One of the more favoured and well-supplied naval medicines was Elixir of Vitriol. The medicine was a combination of sulphuric acid and alcohol which was regularly administered to men suffering from scurvy. According to the Edinburgh and London Pharmacopoeias of 1770, the official breakdown of the additives aside from sulphuric acid was:

Cinnamon, 3 drachms
Ginger, 3 drachms
Cloves, 3 drachms
Calamus, 1 troyounce
Galanga, 1 1/2 troyounce
Sage, 1/2 troyounce
Peppermint, 1/2 troyounce
Cubebs, 2 drachms
Nutmeg, 2 drachms
Aloes, 1 drachm
Citron peel, 1 drachm

Reduce these ingredients to a powder, to which add of

Sugar candy, 3 troyounces
Alcohol, 1 1/2 pints
Oil of vitriol, 1 pint

Digest them together for twenty days, and filter the tincture for use³⁸

Over time, the actual formula altered considerably and it is possible to find other ingredients listed elsewhere.

Elixir of vitriol was first recommended for naval use in January 1740 and had been endorsed by the Royal College of Physicians in London. On that basis, the Admiralty agreed to include the medicine in the surgeons' chests.³⁹ The College estimated that two pounds weight per every hundred men would answer the scurvy problem on ships bound for foreign service. Quantities of the elixir were sent out to Jamaica, Gibraltar and Port Mahon for general distribution for ships under the commands of Vice Admiral Vernon and

³⁸ *London Pharmacopoeia* (1770), item 265 'Mynficht's Elixir of Vitriol'.

³⁹ At the time, the Board was made up of administrative men who lacked medical training. It was common during that period that they would take recommendations from the Royal College of Physicians in London and the Society of Apothecaries as to which medicines would be included in the surgeons' chests. The Board rarely questioned the recommendation and simply required the medicine to be carried by the navy's surgeons.

Rear Admiral Haddock respectively.⁴⁰ Once quantities of the medicine reached Jamaica, Vernon conveyed satisfactory feedback, speaking of the elixir's great benefit to scorbutic seamen and those weakened by fevers and fluxes. Next to rhubarb, he believed, it was the best general medicine for use in that region.⁴¹

In little less than a decade, Dr James Lind, often considered the surgeon responsible for determining the cure for scurvy (although subsequently ignored for decades), used elixir of vitriol for one of his test groups on board the *Salisbury* in 1747.⁴² Lind concluded that the elixir was not effective against scurvy, although his findings were largely ignored because reports from various medical men, including the Royal College of Physicians, continued to believe it was beneficial. For now, elixir of vitriol remained in the surgeons' chest and some believed that it was extremely effective against other diseases aside from scurvy. A letter from J. Martin, surgeon of the *Shoreham* stationed in the Lisbon River, acknowledged the good effects it had in treating ardent and intermitting fevers and fluxes and considered it to 'greatly contribute towards preventing those diseases.'⁴³ Not everyone was an admirer of the elixir. Aside from Lind, Admiral Rodney disapproved of it and wrote to the Sick and Hurt Board from the West Indies in 1781. He felt that:

...every man has his favourite anti-scorbutic, which he presses upon the public with great earnestness, and extols with exaggerated praise. In the beginning the cure of this disease was not sought for from food but from medicine and elixir of vitriol was to be the infallible cure; it was introduced into the navy and is now universally known to be of no manner of service in the cure of the scurvy.⁴⁴

Further realisations of the elixir's failings were presented by the prominent naval physician, Dr Thomas Trotter. In his *Observations on the Scurvy*, published in 1792, Trotter described the elixir as a medicine which surgeons still demanded; however, it was neither 'capable of preventing or curing the scurvy.' He continued by saying that 'when diluted powerfully with water it is commonly used as a gargle to the gums and mouth' but aside from that 'it [was] a mere placebo.'⁴⁵ Trotter's derogatory verdict was not incorrect.

Claims from other surgeons and physicians referring to the elixir's ineffectiveness continued to reach the Sick and Hurt Board until finally they were forced to re-examine its value to naval service. Lloyd and Coulter maintain that the elixir remained in general use

⁴⁰ ADM/E/8b, Admiralty to Sick and Hurt, 23 January 1740.

⁴¹ ADM/E/9, Admiralty to Sick and Hurt, 8 January 1741.

⁴² Refer to the 'Scurvy Cures' section of this Chapter for full details of Lind's trial on board the *Salisbury*.

⁴³ TNA, ADM 97/114/4, J Martin to Sick and Hurt, 7 March 1746.

⁴⁴ TNA, ADM 98/14, Sick and Hurt to Admiralty, 18 December 1781.

⁴⁵ Thomas Trotter, *Observations on the Scurvy*, 2nd edn (London, 1792), p. 184.

until 1794 when the Board concluded that they now preferred *acidum vitriolicum* as its effects were more favourable.⁴⁶ The elixir of vitriol, along with a number of other medicines, spent over half a century in the naval surgeons' chests but provided no genuine medicinal value to combat scurvy.

Dr James's Fever Powder

Another widely popular medicine available to surgeons was Dr James's Fever Powder. Its origins are somewhat disputed, but it is known to have been sold by John Newbury, the publisher of children's books and after which the Newbury Medal was named.⁴⁷ As purveyor of the popular fever powder, Newbury amassed a moderate fortune. Evidence of him as the purveyor is seen in Figure 3.2. Believed to have the capacity to cure more than just fevers, the powder was also touted to cure gout, rheumatism and even scurvy. According to the recipe deposited in Chancery patent records, the fever powder consisted of antimony calcined with a quantity of animal oil and salt.

Not long after its patenting, the navy evaluated the possibility of including Dr James's Fever Powder in the surgeons' chest. During the eighteenth century, medicines featuring antimony in powder form were highly popular as a remedy for various diseases including fevers and the navy was interested in arming its surgeons with it. In September 1752 the Sick and Hurt Board suggested to the Admiralty that surgeons should not be obliged to pay for the powder until they could ensure a proper trial was made in order to test its effectiveness. At that point the fever powder was distributed to a number of naval hospitals to ascertain what benefit, if any, was to be had by using it to treat fevers.⁴⁸ The medicine must have proved effective at the hospitals because the Sick and Hurt Board agreed to distribute it to the entire fleet at no cost to surgeons with a greater quantity put on board ships bound for the coast of Africa and the West Indies. Some West Indian army and navy surgeons considered the powder the best remedy for bilious fevers. Moreover, a

⁴⁶ Christopher Lloyd and Jack L.S. Coulter, *Medicine and the Navy: 1200-1900*, vol 3 (Edinburgh: E&S Livingstone, 1961), pp. 332-333.

⁴⁷ It is traditionally accepted that the powder was created by Dr Robert James and patented at Chancery, although there is some dispute that he may have thieved the recipe from William Schwanberg. The latter invented both a Liquid Shell (used to cure stones and gravel) and a fever powder. Following Schwanberg's death in 1744, his friend, Dr James, applied for a patent on his own fever powder which proved to be a very well-liked medicine. Walter Baker, an administrator for Schwanberg, accused James of stealing the recipe, even going so far as petitioning the King to revoke the patent, but this was denied. See Sidney Lee (ed.), *Dictionary of National Biography 1885-1900*, vol 29 (London: Elder Smith & Co, 1892), pp. 220-221.

⁴⁸ NMM, ADM/E/13, Admiralty to Sick and Hurt, 27 September 1752 and 20 December 1752.

number of army surgeons also used antimonials as purgatives including James's Fever Powder and tartar emetic.⁴⁹

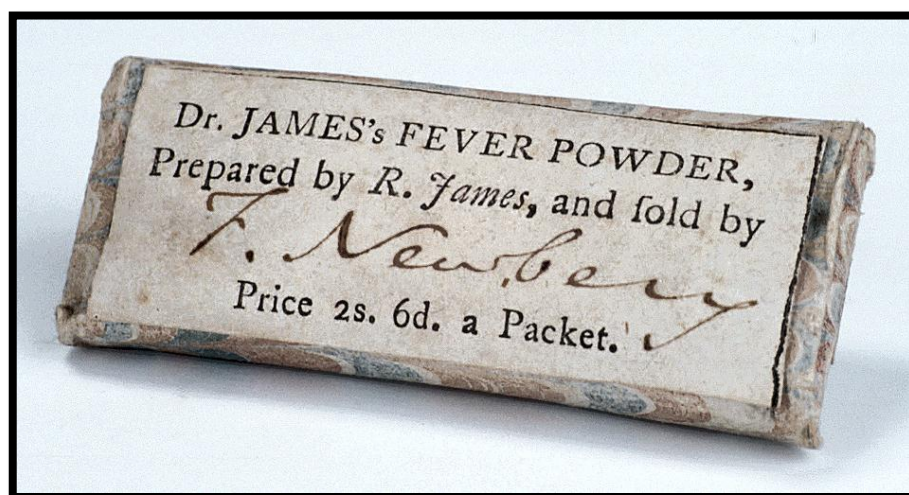


Figure 3.2- Packet of Dr James's Fever Powder⁵⁰

Not all surgeons found James's medicine advantageous; some claimed that it was found to be of little use in fever cases. The medicine quickly earned a number of adversaries. One of the most vocal opposers of his fever powder was Dr Garlick, surgeon of the *Princess Caroline* hospital ship. According to Garlick, he found the medicine extremely ineffective when treating his fever patients and requested to be supplied with an alternative. The Admiralty condemned his view of the powder and had 'a very bad opinion of his judgement.'⁵¹ The Admiralty refused to supply Garlick with an alternative medicine and instructed him to make use of the powder for all fever complaints. Garlick was not the only challenger of the fever powder's efficacy. In an anonymous pamphlet entitled *A New Method of Treating the Common Continual Fever...With Some Observations on...Dr James's Fever Powder* its author also questioned the utility of the medicine. He felt slightly more convinced than Garlick about the powder's effectiveness, although he recommended using it in conjunction with other cures to make it truly useful.⁵² James Lind was also against the use of the powder, saying it had no real healing capabilities as well as criticising the secrecy surrounding its recipe. Speculation as to the makeup of the medicine was a topic of more than one pamphlet. Dr Malcolm Flemming penned an entire dissertation focusing exclusively on the powder and spent a great deal of time analyzing its composition and suggested 'that the fever powder consists of an antimonial and mercurial preparation

⁴⁹ Mark Harrison, *Medicine in an Age of Commerce and Empire: Britain and its Tropical Colonies, 1660-1830* (Oxford: Oxford University Press, 2010), p. 144.

⁵⁰ Dr James's Fever Powder c.1770. Museum of the History of Science, Oxford. Reference 42170.

⁵¹ NMM, ADM/E/16, Admiralty to Sick and Hurt, 23 June 1756.

⁵² Anonymous, *A New Method of Treating the Common Continual Fever, and Some Other Distempers: With Some Observations on a Treatise, called the Febricula, and Dr James's Fever Powder* (London, 1757), pp. 21-22.

united.⁵³ Unlike a number of his contemporaries, Flemying believed the powder had some curative properties. This particular mixture in the powder, according to Flemying, was not only useful in fever cases, it was also a ‘powerful remedy against chronical rheumatism’ which was used ‘in our navy...with great success [against] that distemper.’⁵⁴

Whatever effects the medicine did or did not have, the navy continued to use it for as long they supplied elixir of vitriol. In 1796, the Sick and Hurt Board was still recommending James’s powder, although, according to their own letter, they were unsure why they continued advocating its use for so long when ‘no more than three editions of the London Pharmacopoeia [had] been published during the present century and...no notice whatever [was] taken of James’ powder in any of them.’⁵⁵ It seems that the navy was one of a limited number of supporters for the medicine; however, by the end of that year, they no longer distributed it. By this time a number of the administrative commissioners on the Sick and Hurt Board had been replaced by trained medical practitioners who had experience employing the powder while serving on board ships. Most notable was Gilbert Blane who had witnessed firsthand the devastation of fever in the West Indies as well as the ineffectiveness of James’s powder. On his advice, the Board discontinued the distribution of the antiquated remedy and instead trialled the *pulvis antimonialis* which they believed was potentially better suited for saving the lives of many men.⁵⁶ Despite the navy’s decision to withdraw the medicine from general distribution, James’s powder and other antimonials remained popular in the West Indies well into the nineteenth century.

Peruvian Bark

What Dr James’s Fever Powder lacked in healing ability, the Peruvian Bark atoned for. This medicine, sometimes referred to as Jesuit’s Bark or cinchona, was first brought to Europe from South America in 1631.⁵⁷ Its European name derives from both its indigenous growing region and the group of men who first carried it back from South America. Originally gathered from the *cinchona* trees native to Peru, the bark was shown to Jesuit missionaries as a cure for the ‘ague’ or ‘intermittent fever’ (malaria).⁵⁸ As malaria was

⁵³ Malcolm Flemying, *Dissertation on Dr James’s Fever Powder in which the different circumstances, wherein that remedy may prove beneficial or hurtful, are considered and distinguished, according to observation and reason* (London, 1760), p. 9.

⁵⁴ *Ibid.*, p. 39.

⁵⁵ NMM, ADM/F/26, Sick and Hurt to Admiralty, 2 February 1796.

⁵⁶ NMM, ADM/E/45, Admiralty to Sick and Hurt, 6 February 1796.

⁵⁷ Fiammetta Rocco, *The Miraculous Fever-Tree: The Cure That Changed the World* (London: HarperCollins, 2003), p. xviii.

⁵⁸ There is some speculation that the naming of the cinchona tree was done to honour the Countess of Chinchón. According to various sources the wife of the Viceroy had fallen ill with a tertian fever while in Peru and word spread into rural areas as far as present-day Ecuador. The Prefect of Loja was said to have written to the Viceroy saying he had a cure for the Countess comprised of the bark from a local tree. When

not common in the cool mountains of the Andes, the Indians of northern Peru only used the bark from the cinchona tree as a cure for shivering. The missionaries thought the bark could be useful in treating ‘marsh fever’ which the residents in and around Rome suffered from during the hot, rainy months as shivering was one of the principal symptoms. The Jesuits considered it imperative they bring a quantity of bark with them when they returned to Europe to determine whether or not it could treat fevers.⁵⁹ Its effectiveness was immediately felt and there was a sudden interest in its procurement from South America. Large sums of money were put up by a number of European interests and sizeable quantities of bark began to arrive in Europe. So well received was the bark throughout Europe that it soon became the focus of esteemed botanists who requested that seeds from the tree be brought back in order to attempt cultivation. Not long after, the Netherlands East India Company successfully established plantations of *cinchona succiruba* on the islands of the South China Sea; the first place cinchona was grown outside of its native land.⁶⁰ The Peruvian Bark also spread to England and was first advertised for sale in 1658 by James Thompson, and twenty years later it was included in the London Pharmacopoeia.⁶¹

Unlike other naval treatments which were originally recommended either by the Admiralty, the Sick and Hurt Board or the College of Physicians, the Peruvian Bark came to the navy’s attention by way of one of its captains. Captain Thomas Collingwood of the *Rainbow* was ordered to the west coast of Africa in 1773. He was fortunate enough to be accompanied by the surgeon Robert Robertson, who saw fit to carry out his own trial of the bark which ‘was attended with great success.’⁶² Since it was his duty to ‘use every prudent method to obviate fevers amongst [the men] who are employed on...shore duty this voyage’, he distributed a tincture of bark prior to sending men ashore on wooding and watering duties. He believed the bark would prevent or at least partially alleviate the threat of the intermittent fever. Robertson revealed that on the voyage he successfully administered the treatment on shore at St Thomas (an island off Sierra Leone, West Africa). He recounted what occurred:

the Prefect arrived with the remedy, it is said that the Countess made a full recovery. Upon her return to Europe, she is said to have carried the bark with her causing Carolus Linnaeus, a Swedish botanist, to classify the family of the Peruvian bark in 1742 after her. Sadly this story is simply not true. The Viceroy’s private diary, which resurfaced in the 1930s, does not mention any illness endured by the Countess, at least not malaria. In the diary, it also describes how the Countess died suddenly in Cartagena before ever returning to Europe. See Rocco, *The Miraculous Fever-Tree*, pp. 55-57.

⁵⁹ Ibid., p. 52.

⁶⁰ Joan Druett, *Rough Medicine: Surgeons at Sea in the Age of Sail* (New York: Routledge, 2000), p. 61.

⁶¹ Ibid., p. 61.

⁶² NMM, ADM/A/2685, Admiralty to Navy Board, 21 November 1774. See also Robert Robertson, *A Physical Journal Kept on Board His Majesty’s Ship Rainbow, During Three Voyages to the Coast of Africa and West Indies, in 1772, 1773 and 1774. To Which is Prefixed, an Account of the Remitting Fever, which happened on board the Weasel, on that Coast, in 1769* (London, 1777).

when at St Thomas's...our officers and men, about fifty in number on duty were obliged to stay ashore all night from a great tornado, I sent a dose of tincture of bark for each of them in the morning after, to be taken in a glass of wine...few of them were afterwards [taken] with fevers to what were expected, and in all probability would have been had they not got that medicine.⁶³

Following that, Robertson continued to administer a quarter pint of his vinous tincture of bark to each crew member every morning before they went ashore at Sierra Leone, St Thomas or Cape Coast. Robertson reported that during that time only two men had been seized with fever at Sierra Leone (one while cutting wood ashore), three at St Thomas (one while fishing and two while watering) and not one seaman at Cape Coast was taken ill. Seeing as these results were atypical for ships stationed in that area, Collingwood strongly recommended that the Admiralty provide the bark with a glass a wine for all future operations on that coast.⁶⁴ At the conclusion of his naval service at sea, Robertson took to writing about his experimentation with Peruvian Bark. According to him, the bark was the most advantageous remedy in treating fevers. He backed up his findings with analytical tables illustrating his success rate with bark on board a number of naval ships, particularly those he served on during the American War of Independence.⁶⁵

After his naval service afloat ended, Robertson was employed privately in Hampshire before rejoining the navy as Physician of Greenwich Hospital (1790-1807). As will be shown, the surgeon's advice for administering Peruvian Bark on voyages to the African coast was heeded by the Admiralty. Although Robertson's influence over the alteration in naval procedure was a noteworthy achievement, he did not stop there. He remained dedicated to the study of fevers and their treatments. In 1790, Robertson published *An Essay on Fevers* which advocated the use of bark not only beyond the African coast, but to extend its distribution to the army and to 'civil service at large'.⁶⁶ So convinced of the efficacy of the bark, a further publication came in 1799 titled *Directions for Administering Peruvian Bark...In Fever and other Diseases* in which Robertson offered recipes for several

⁶³ NMM, ADM/E/41, Admiralty to Sick and Hurt, 17 September 1773.

⁶⁴ NMM, ADM/E/41, Captain Collingwood to Admiralty, 17 September 1773.

⁶⁵ Robert Robertson, *Observations on the Jail, Hospital, or Ship Fever* (London, 1783), pp. 139-147, 300-302.

⁶⁶ Tröhler, 'Quantification in British Medicine and Surgery', p. 180. See also Robert Robertson, *An Essay on Fevers; Wherein their theoretic genera, species, and various denominations, are, from Observation and Experience, for thirty years, in Europe, Africa, and America, and on the Intermediate Seas, Reduced under their characteristic genus, Febrile Infection; and the Cure Established on Philosophical Induction* (London, 1790).

concoctions containing bark in order to make more palatable and easier on the stomach (a common complaint).⁶⁷

Collingwood and Robertson's correspondence from their experience with the medicine in 1773 initiated the Admiralty's approval of the distribution of Peruvian Bark to all ships bound for the coast of Africa.⁶⁸ The bark was ordered to be administered to men before they went on shore 'in the quantity of a drachm morning and evening in half a gill of wine and each man to have afterwards the like quantity of pure wine which will contribute to promote the success of the bark.'⁶⁹ The *Pallas* was one of the first ships to receive instructions to distribute bark in this fashion when it was ordered to Africa in 1775. According to her captain, Captain Cornwallis, the ship's men were employed wooding on shore both morning and evening and very few of them were taken sick. He claimed they were generally healthy and he could not recall a time when the surgeon reported a single man in danger, nor did they have a man die. During their middle passage to the West Indies, the scurvy made an appearance, but those men recovered upon their arrival at Jamaica due to the availability of fresh provisions.⁷⁰

Another advocate for administering bark to seamen in tropical climates was James Lind who referred to the medicine in his *Treatise of the Scurvy*. He found the bark's circulation amongst those suffering from both intermittent and remittent fevers 'proved the most certain means of cure' and 'the bark [was]...the best remedy.'⁷¹ Even more innovative was his view that, since bark appeared to curtail relapses, then conceivably it could also be used to *prevent* fevers from taking hold of individuals coming in contact with the 'bad airs'. His advice appears to have been overlooked for some time as the bark's issuance continued sporadically and was administered only once fevers set in. Gilbert Blane agreed with Lind's endorsement of the Peruvian Bark, and in his *Observations on the Diseases of Seamen*, he reiterated the success of the medicine on board the *Rainbow* off the coast of Africa and went as far as recommending government to issue the bark not only for ships destined to serve in that region, but also to those stationed in the West Indies.⁷² Blane claimed to have befriended an eminent physician in the West Indies who enjoyed 'uninterrupted health' which the latter attributed to his taking an ounce of bark 'every change and full of the

⁶⁷ Robert Robertson, *Directions for Administering Peruvian Bark, in a Fermenting State, In Fever and other Diseases in which Peruvian Bark is Proper and More especially in such cases as the usual formulæ of the Bark are rejected by the stomach, or nauseated by the sick: with some experiments to Ferment the Peruvian Bark with Different Sweet* (London, 1799).

⁶⁸ NMM, ADM/A/2685, Admiralty to Navy Board, 21 November 1774.

⁶⁹ *Ibid.*

⁷⁰ NMM, ADM/E/42, Captain Cornwallis to Admiralty, 1 September 1775.

⁷¹ James Lind, *A Treatise of the Scurvy* (Edinburgh, 1753), unpaginated.

⁷² Gilbert Blane, *Observations on the Diseases of Seamen*, 2nd edn (London, 1789), unpaginated.

moon.’ Blane was not convinced the phases of the moon influenced the onset of fevers; however, it appeared to him that the use of bark certainly kept the disease at bay.

Seamen frequently complained about the harsh taste of bark, causing reluctance among patients to take the medicine. Lind suggested that it could be made palatable by infusing it in spirits (particularly wine) especially if some orange peel was added to conceal the bark’s bitter nature. According to his estimations, if eight ounces of bark was blended with four ounces of dried orange peel and then combined with a gallon of spirits, he conceived it would produce an effective and satisfactory remedy. If two ounces of that mixture were administered daily to men who were stationed in areas where fevers were known to persist, he believed it would be a sufficient amount to ward off the disease. As previously stated, Robertson also offered ‘alternative’ recipes for taking the bark in order to make it more palatable. His suggestion was to serve the bark in a fermenting state to reduce patients’ nausea. In a series of experiments carried out at Greenwich Hospital in Autumn 1796, Robertson dissolved bark into a variety of substances including treacle, brown sugar, honey and sweet wort to which was always added a pint of barm to activate the fermentation process.⁷³

Despite this medical innovation and the ongoing experimentation by a number of naval surgeons, the navy’s distribution of Peruvian Bark was limited by the Admiralty to the coast of Africa only and was not widely provided for use in other tropical climates. The Sick and Hurt Board believed that although the bark worked in Africa’s tropical climate, it did not necessarily mean it would work in other tropical regions. Their logic was partly based on the lack of medical understanding and their assumption that fevers differed by location. It was also partly based on the difference in landscape. When seamen were sent ashore to wood and water in Africa, it was supposed they were exposed to ‘dews and noxious damps’ trapped in the forested coastal areas and, upon their return to their ships, many were seized with fevers. Issuing the bark mixed with wine succeeded in warding off fevers along that coast. Providing it in the West Indies on islands which were ‘well cleared from those forests impervious to the sun and which have a perpetual damp hovering about them’ would simply not work.⁷⁴ Additionally the Board was informed that men sent on shore in the West Indies were not at such a high risk of contracting fevers as they were in Africa. They weighed their options whether or not to trial bark in the West Indies and surmised the experiment would prove very expensive and potentially useless. They also knew it

⁷³ Robertson, *Directions for Administering Peruvian Bark*, pp. 5-7.

⁷⁴ TNA, ADM 98/14, Sick and Hurt to Admiralty, 18 December 1781.

would be difficult to persuade seamen to take the drug ‘unless they saw almost a certainty of their being sick’ and that was only the case on the coast of Africa.⁷⁵

Once again it was down to admirals, captains and surgeons on both the Leeward Islands and Jamaica stations to request the medicine rather than the Board agreeing to convey it there. In 1780, Sir Peter Parker wrote from Jamaica relating that several complaints had been made by captains citing the lack of bark and alleged ‘several men [had] died from the want of a proper quantity of [it].’⁷⁶ In Parker’s opinion, naval surgeons should be supplied ‘at the expense of government with Peruvian Bark...especially in the West Indies.’ Echoing Parker’s initiative, Admiral Rodney also insisted he be supplied with a quantity of the bark before sailing for the Leeward Islands. Citing the ‘landscape logic’, the Board believed that with the existing hospitals and hospital ships in place in the West Indies, sick seamen could be properly attended to and relieved of any sickness without the issuance of bark.⁷⁷ Rodney was not convinced by this and nor was his newly-appointed physician of the fleet, Gilbert Blane. Rather than allow seamen to suffer from fevers, both Rodney and Blane took their own initiative and purchased 500 pounds weight of Peruvian Bark and divided it amongst the ships in his squadron. According to Rodney’s letter to the Sick and Hurt Board justifying the expenditure, the number of sick men at Jamaica numbered far too many for the hospital to accommodate and it appeared to him that the only way to combat the fever was to procure the bark themselves. Once the medicine was in hand, he claimed the fever patients recovered more rapidly while they were tended to on board ships rather than those in hospital.⁷⁸

Throughout 1795, and even the early part of 1796, ships intended for the West Indies were still not mandatorily furnished with bark. A desperate plea was delivered by Captain Countess, commander of the *Daedalus* at Port Royal, Jamaica. *Daedalus*’s surgeon, Mr Winter, administered bark in the prescribed manner while the ship was off the coast of Africa before sailing for the West Indies. Its circulation subsequently resulted in only two deaths (one alleged to be caused by an apoplectic fit, the other from an old internal complaint). With such an outstanding track record, Winter thought to continue its usage upon arrival at Jamaica as the men would mainly be employed on shore on watering duties at Rock Fort. Much to the captain’s satisfaction, the bark and wine resulted in ‘not one person so employed having been taken ill.’⁷⁹ With such agreeable results found on both

⁷⁵ Ibid.

⁷⁶ NMM, ADM/E/42, Sir Peter Parker to Admiralty, 15 December 1780.

⁷⁷ TNA, ADM 98/14, Sick and Hurt to Admiralty, 18 December 1781.

⁷⁸ NMM, ADM/FP/25, Admiral Rodney to Sick and Hurt, 18 June 1782.

⁷⁹ NMM, ADM/F/27, Captain Countess to Sick and Hurt, 14 October 1796.

sides of the Atlantic where malaria raged, Countess strongly advocated the distribution of bark to ships destined for either location as, according to him, he '[had] so high an opinion of its good effects, it should be administered to a much greater extent: to preserve the men's health at this dreadful time of sickness and death being in my opinion of the greatest consideration.'⁸⁰ When Countess's testimonial arrived at the Sick and Hurt Board, Gilbert Blane, by that time, had been appointed to serve as a commissioner on that Board. As he recognised the utility of the medicine from his time spent in the West Indies as well as being acquainted with Robertson's experiments with bark at Greenwich Hospital, Blane was all too pleased to unequivocally recommend its general distribution to ships serving in that region. Within ten days, Countess, and several other admirals, captains, physicians and surgeons had their wish: the Admiralty authorised the distribution of bark to vessels bound for the West Indies to answer the devastating nature of fevers.

Ulcer Cures

Ulcers were one of the main maladies of the eighteenth century seamen, and, like so many other diseases, there was no apparent cure or alleviation for their suffering. Initially most ulcers, especially the scorbutic ulcers on the legs, were treated with simple stockings to cover the open sores. Surgeons believed that by covering the sore, it would eventually heal itself over time. Mr Allen, surgeon of the *Solebay* hospital ship, maintained that healing time sped up when stockings were employed and also prevented the sores from returning. While patients were on the sick list, they were fed a more nutritious diet that was of more use in curing the ulcer than stockings were. Once seamen left the sick list and returned to standard victualling, their sores soon reopened.

Some of the more observant surgeons noticed that the seamen's diet influenced the outbreak and cure of ulcers. Vice Admiral Pye's surgeon remarked that the distribution of portable soup 'greatly assist[ed] in the cure of obstinate ulcers.'⁸¹ While this probably did have salutatory effects since the broth was prepared with vegetables and would have provided nominal nutritional value, it was not enough to alleviate ulcers completely. By the 1780s, citrus juice was used sporadically throughout the fleet to attend to various illnesses, and it was noticed that those ships who employed lemons and lemon juice, found that they helped to heal ulcers. In 1782, Captain Curtis claimed the *Porcupine's* men were suffering considerably from scurvy, obstinate fluxes, boils and ulcers, all of which were cured on

⁸⁰ Ibid.

⁸¹ TNA, ADM 1/308, Vice Admiral Pye to Admiralty, 25 October 1767.

board through the 'liberal use of lemons.'⁸² Writing a decade later (but still prior to the general issuance of lemon juice) Thomas Trotter remarked on the use of lemon juice and its advantageous effects on ulcers. He observed:

The livid complexion of the sore itself, with the black cloat [sic] of blood on their surface, disappears, oftentimes in less then twenty-four hours. The ulcer becomes florid, the cloat [sic] of blood is not regenerated, and a smaller quantity of pus than is usually found in other sores of equal size, is the consequence.⁸³

When lemon juice began to be distributed to sick seamen in 1795, the occurrences of ulcers lessened. And when, in 1797, the Channel Fleet was suffering from an attack of scurvy and ulcers, the Sick and Hurt Board realised that the lack of lemon juice and fresh vegetables was to blame.⁸⁴ As long as those items could be procured and sent out directly from Plymouth to the ships, the Board anticipated scurvy and ulcers would significantly subside.

Mr Magennis received the attention of both the Sick and Hurt Board and the Admiralty when he proposed an additional treatment for ulcers in 1798. Magennis was the surgeon to prisoners-of-war at Norman Cross, although he had previously served as a naval surgeon on board a number of ships. During his stint afloat he 'observed with unavailing regret a great number of brave and able seamen annually rendered useless to the public service to themselves and their families owing to the dreadful ravages made by old and what was then deemed incurable ulcers.'⁸⁵ He rejected various contemporary methods to cure ulcers not specifically employed by the navy which included the application of ointments, Peruvian Bark, calomel, antimony, elixir of vitriol and opium claiming that not much ground was gained by those remedies. In his capacity at Norman Cross, Magennis treated the vast number of prisoners who were afflicted with old ulcers using a variety of remedies to no avail. He eventually encountered a pamphlet written by Mr Baynton suggesting an alternative treatment which in theory was 'in direct opposition to common reason and common observation.' Baynton's method consisted of applying a strip or strips of plaster agreeable to the size and extent of the ulcer and then supporting the entire limb with a spiral roller. Once the dressing had been applied, Baynton advised keeping it continually moist with cold water to prevent inflammation and enable a small cicatrix when healed. The plaster itself was to be fabricated from a mixture of diachylon and yellow resin melted together and then separated into useable pieces when it dried. Magennis commented on his success using this natural product citing:

⁸² NMM, ADM/E/43, Captain Curtis to Admiralty, 10 September 1782.

⁸³ Trotter, *Observations on the Scurvy*, pp. 141-142.

⁸⁴ NMM, ADM/F/28, Sick and Hurt to Admiralty, 4 July 1797.

⁸⁵ NMM, ADM/F/29, Mr Magennis to Sick and Hurt, 2 November 1798.

It may be remarked as an extraordinary circumstance that the simplicity of the process had not led to a more early discovery, a proof of how frequently we wander in search of abstruse and complex remedies for the cure of simple diseases. Nature is generally plain, uniform and consistent in her movements.⁸⁶

So impressed was the Sick and Hurt Board with the comprehensive experimentation and report sent in by the surgeon that it was immediately decided not only to trial Magennis's cure, but to also put instructions directly into print in order to distribute them to all surgeons in the Royal Navy. This extraordinary action, which was immediately approved by the Admiralty, was certainly unusual and was not replicated again with any other medication or treatment.⁸⁷ Typically the Board conducted thorough investigations into the effectiveness of treatments and once they were considered successful, only then did the Board print instructions for use. This process had the potential to last for a few years, so it is particularly extraordinary that they approved Magennis's cure so quickly. Following the distribution of the printed instructions, naval surgeons commented that they were grateful for being introduced to this new method of treating ulcers. One of those men was Mr Vance, surgeon of the *Agincourt*. He referred to Magennis's method as an 'excellent plan' and found that before he tried the method on board the ship 'he had [previously] been in the habit of putting one or two men on shore every week [into hospital]' and using this treatment meant that 'many small ulcers on the lower extremities were healed in five or six dressings which had [normally] rendered many men incapable of doing their duty for many months.'⁸⁸ The only negative drawback to the treatment was that it was only curative and could not be used as a preventative.

In spite of the distribution of lemon juice and Magennis's plasters, letters arrived at the Sick and Hurt Board indicating seamen continued to suffer from outbreaks of ulcers. Despite these recurrences, Captain Hardy of the *Courageux* and Admiral Cochrane wrote in 1803 and 1805 respectively, both noting that when there were cases of ulcers, their surgeons and physicians were able to treat them efficiently, enabling the seamen to return to work in a short time.⁸⁹ Until a nourishing and wholesome seamen's diet was completely understood and provided, ulcers remained a persistent problem for the Royal Navy. Owing to medical innovations (however simple) throughout the eighteenth century, ulcers became manageable and no longer an ailment which forced invalids home.

⁸⁶ Ibid.

⁸⁷ NMM, ADM/E/46, Admiralty to Sick and Hurt, 3 November 1798.

⁸⁸ NMM, ADM/E/47, Mr Vance to Admiralty, 19 November 1799.

⁸⁹ TNA, ADM 1/326, Admiral Cochrane to Sick and Hurt, 2 June 1805.

Rupture (Hernia) Cures

Ruptures were frequently-occurring ailments which were caused by the physical working conditions on board ships. They were part of everyday life and as with other disorders of the late eighteenth century, there was little which could be done to prevent them. Once a seaman suffered a rupture it was tended to with a rudimentary apparatus called a truss. Essentially a truss was a belt-like instrument worn round the waist which applied pressure to the lowest section of the abdomen where ruptures frequently occurred. The belt was wrapped behind the back with an additional strap that fed from the backside, underneath the groin and attached to the belt in the abdominal area (Figures 3.3 and Figure 3.4). Before the truss could be applied, the injured seaman laid down and the rupture was manipulated back up into the abdomen by the surgeon. The long movable pad was then placed over the spot where the distended bowel re-entered the belly while the strap passed around the opposite hip.⁹⁰

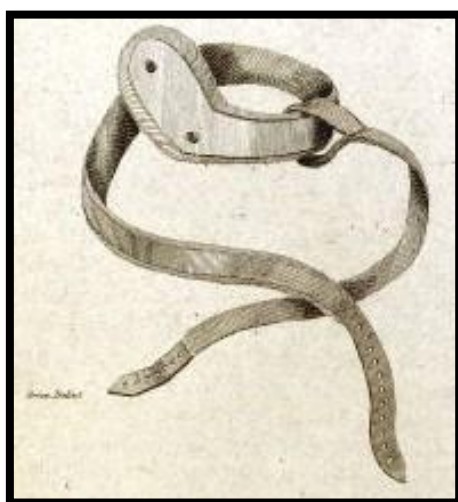


Figure 3.3 – Truss for Treating Ruptures⁹¹

From the mid-eighteenth century, trusses were the only real treatment for ruptures. Their issuance in the navy began in 1744 when captains appointed to regulate pressed seamen in port towns forwarded a request to the Navy Board. Pressed men were prone to experiencing ruptures since they were generally recruited from other manual labour trades. The decision was made to not only allow a supply to those captains, but to also distribute them to surgeons on board all His Majesty's ships so they could be 'ready to apply when sailors meet with accidents which occasion ruptures.'⁹² Steel trusses were distributed to the

⁹⁰ Thomas Spencer Wells, *The Scale of Medicines with which Merchant Vessels are to be Furnished, By command of the Privy Council for Trade* (London, 1851), unpaginated.

⁹¹ Truss c1806. Copyright Wellcome Library, London. Reference L0038433.

⁹² NMM, ADM/E/11, Admiralty to Sick and Hurt, 1 March 1744.

fleet at a rate of five per every hundred men (one was a double truss, two were for the right side and two for the left side).

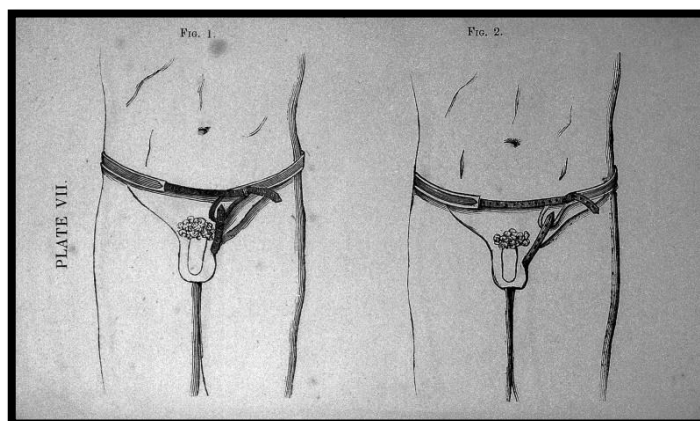


Figure 3.4 – Truss Shown on the Body⁹³

Between 1745 and 1747 a total of 1,366 trusses - both single and double - were delivered by the navy's supplier, Mrs Ann Johnson, at a cost of £308-8s which equated to 4s-5d per truss. When compared with the typical rate of '20s that some truss-makers charged for their product...there can be little doubt that military and naval trusses were of dubious quality.'⁹⁴ Furthermore, the navy's trusses were constructed for a general fit and proved inadequate for most ruptures. In 1751, Dr Lee, the rupture doctor at Greenwich Hospital, wrote to the Admiralty alleging to have produced his own special bandage which he claimed was effective in the treatment of the ailment. The Sick and Hurt Board called a meeting with Lee as well as the physician of that hospital to discuss his invention and its effectiveness on patients. According to Lloyd and Coulter, it was at that point that Lee was revealed as a quack whose special bandages were confirmed to be futile in rupture cases. The only explanation for his unsuccessfulness in curing his patients was because Lee suspected 'there was a distinction between marine and land ruptures', something which the Board did not believe.⁹⁵

When the Sick and Hurt Board were revising their 'General Instructions' for surgeons in 1763, they acknowledged the naval trusses' shortcomings and recommended that rather than use them in all rupture cases, surgeons could make their own bandages specific to each patient.⁹⁶ These bandages would serve temporarily until the ruptured men were put

⁹³ Trusses on body, c1835. Copyright of the Wellcome Library, London. Reference L0029974.

⁹⁴ Philip R. Mills, 'Privates on Parade: Soldiers, Medicine and the Treatment of Inguinal Hernias in Georgian England' in Geoffrey L. Hudson (ed.), *British Military and Naval Medicine 1600-1830* (Amsterdam: Rodopi, 2007), p. 161. NMM, ADM/F/11, Sick and Hurt to Admiralty, 3 April 1752.

⁹⁵NMM, ADM/E/13, Admiralty to Sick and Hurt, 6 June 1751. Lloyd and Coulter, *Medicine and the Navy*, p. 353.

⁹⁶ NMM, ADM/F/24, Sick and Hurt to Admiralty, 25 November 1763.

on shore where they would be fitted with proper trusses at a hospital or sick quarters. This idea proved unpopular because the bandages were not supportive enough, therefore trusses remained the standard.

William Blakey, a member of the College of Surgeons in Paris, claimed to have invented a more beneficial type of truss which he proposed for use in the navy. He alleged that his 'elastic bandages' were far superior to any other kind and were successfully administered in hospitals at Brest and Rochefort. Moreover, he claimed the most eminent surgeons in France had been using these particular bandages for upwards of thirty years with efficacious results. On the Board's insistence, Blakey's trusses were forwarded to a number of distinguished surgeons in London for their advice. Following their trials, those men concluded his bandages were of no greater advantage than those presently supplied for naval service or hospitals in town.⁹⁷ No record exists as to the precise outcome of the meeting held with Blakey after these independent trials, but it can be safely assumed that, since the navy continued distributing steel trusses, they deemed his proposal lacking in merit.

Fifteen years passed without scrutiny into the effectiveness of steel trusses. It was not until Admiral Rodney submitted a lengthy letter regarding ruptures and his proposal to treat them that their distribution was re-evaluated. Writing in December 1781 whilst back in London for the recovery of his own health, Rodney acknowledged that numerous seamen were prone to ruptures and conceded that many of these men were invalided due to the lack of suitable treatment. He applauded Dr Brand, the rupture surgeon at Greenwich Hospital, for taking the initiative to treat his rupture patients with elastic trusses similar to those proposed by Blakey. As far as Rodney was concerned, the navy would benefit from using Brand's trusses rather than the steel ones. Dr Hunter, an eminent surgeon in London, praised Brand's treatment, and recognised the 'great pain' the latter took to adapt his trusses to the ailment. Hunter maintained that Brand's revolutionary truss could not have been made 'if he [Brand] had not taken all the means in his power to understand the disease a circumstance (I believe) no truss maker has ever attempted.'⁹⁸ In order to

⁹⁷ NMM, ADM/FP/8, Sick and Hurt to Admiralty, 5 August 1763. ADM/E/40, Blakey to Admiralty, 17 July 1765.

⁹⁸ TNA, ADM 1/314, Dr John Hunter to Admiral Rodney, 7 December 1781. Dr John Hunter was born in Scotland in 1728 and received very little in the way of formal education, his medical education being mainly self-taught. In 1748, he moved to London to join his brother William (a prominent anatomist and obstetrician) where they both taught anatomy. He later served in London at Chelsea Hospital, St Bartholomew's Hospital and St George's Hospital until 1761 when he was sent to France and Portugal to work as an army surgeon. Eventually returning to London, he established his own anatomy school and was elected a Fellow of the Royal Society. In 1786 he was appointed deputy surgeon to the army and in 1789 he

ascertain which truss was superior, the Sick and Hurt Board forwarded a steel naval truss and Dr Brand's elastic truss to surgeons at all major London hospitals for their opinions. Those surgeons unanimously concluded that the current naval trusses were the 'most proper and serviceable.'⁹⁹ Therefore these relatively useless steel trusses remained in naval service until the nineteenth century and continued to have a marginal effect on most ruptures.

Aside from the issuance of trusses, there was little else that could be done to contend with these common work hazards. Other treatments recommended by surgeons typically involved a change in the patients' diets. According to Dr John Atkins' *The Navy Surgeon: Or, A Practical System of Surgery Illustrated with observations on such remarkable Cases as have occurred to the Author's practice in the Service of the Royal Navy* the best method for treating ruptures was to prescribe a warm diet of good nourishment. He suggested the diet consist of mutton, veal, lamb or pullet while many activities, including walking, running, leaping, riding, coughing, sneezing and inordinate laughter 'must be forbid.' In order to reposition the distended abdomen, he recommended 'laying the patient on his back with his buttocks raised; and then...gently repressing [the rupture] with your hands.'¹⁰⁰ Another method that was used to treat ruptured patients was a warm bath and a grain of opium every eight hours, coupled with an attempt to reduce abdominal distensions manually.¹⁰¹ No matter what the suggestion, the navy was years away from providing adequate treatment while ruptures continued to occur for as long as seamen endured intense physical labour on board ships.

Venesection (Bleeding and Bloodletting)

Venesection, also known as bleeding or bloodletting, was a common medical practice which dated back to Hippocratic and Galenic times that was used to treat a variety of diseases, although mainly fevers. Eighteenth and nineteenth century medicine was still influenced by this practice, particularly when it came to ridding the body of harmful substances. Venesection was part of a trinity of treatments: bleeding, emetics and cathartics which were intended to cleanse the body functions in areas such as the lungs, kidneys and the gastrointestinal tract to permit natural recovery.¹⁰² Even before the coming

was made Surgeon General. See Wendy Moore, *The Knife Man: the Extraordinary Life and Times of John Hunter, Father of Modern Surgery* (London: Bantam Press, 2005).

⁹⁹ NMM, ADM/FP/25, London Surgeons to Sick and Hurt, 11 February 1782.

¹⁰⁰ Atkins, *The Navy Surgeon*, unpaginated.

¹⁰¹ Jonathan Charles Goddard, 'Genitourinary Medicine and Surgery in Nelson's Navy' in *Postgrad Medical Journal*, vol 81 (2005), p. 416.

¹⁰² William E. Court, '18th Century Drugs for the Royal Navy' in *Pharmaceutical Historian*, vol 17, no 3 (September 1987), p. 2.

of the Enlightenment in the final decades of the eighteenth century, a number of surgeons began to question the rationale behind the practice. In William Cockburn's *Sea Diseases*, the author acknowledged the uncertainty behind the practice of bleeding: 'We [surgeons] cannot determine when it will prove useful and when fatal, it being every evident that it sometimes does great good, and at other times great mischief. In some epidemical diseases all die that are bled; in other seasons, bleeding has been very useful.'¹⁰³ Over a century later, the same argument over whether or not bleeding was an acceptable practice was made by Thomas Spencer Wells:

Great caution must therefore be exercised before bleeding anyone, or adopting any other measure which can permanently lower the powers of [the patient's] system. Temporary good may be done at the expense of great future evil. A medical man often finds it difficult to determine if bleeding to relieve some urgent symptom is advisable, or if it may not do more harm than good, by weakening the patient, and prolonging the disease. A person not medically educated, therefore, should not run any risk, but rather be sure at least to *do no harm*. If he have any doubt, *let him wait*.¹⁰⁴

Bleeding was particularly employed in fever cases, meaning that a number of surgeons in the West Indies practiced it regularly. Between 1760 and 1790, the uncertainty surrounding venesection's efficacy against fevers came to a head in that region. Harrison maintains that by the American War of Independence, it seems as if there had been a marked shift away from bleeding.¹⁰⁵ The naval surgeon Robert Robertson spent time in the West Indies during the 1760s and 1770s, during which time he made numerous observations on fevers and the several treatments employed. His examinations caused him to dismiss bleeding as a viable remedy since 'from upwards of thirty years experience and observation, I have never in one instance seen its good effects; nor a case in which, upon a serious revision of it, it would not have been better omitted.'¹⁰⁶ Robertson claimed that venesection diminished 'the already debilitated energy upon which the equilibrium or healthful state depends' and increased 'the cause of the fever; which certainly is not a philosophical way to cure it.'¹⁰⁷ He also noted that most surgeons assumed that all fevers were caused by inflammation; therefore bleeding a fever patient would assuage that particular symptom. Initially, he preferred to induce vomiting in fever cases with an emetic such as ipecacuanha

¹⁰³ William Cockburn, *Sea Diseases: or, a Treatise of their Nature, Causes, and Cure. Also an Essay on Bleeding in Fevers; shewing the Quantities of Blood to be let in any of their periods*, 3rd edn (London, 1736), p. 242.

¹⁰⁴ Thomas Spencer Wells, *The Scale of Medicines with which Merchant Vessels are to be Furnished, By command of the Privy Council for Trade*. (London, 1851), unpaginated.

¹⁰⁵ Harrison, *Medicine in an Age of Commerce*, pp. 128-129.

¹⁰⁶ Robert Robertson, *An Essay on Fevers; Wherein their theoretic genera, species, and various denominations, are, from Observation and Experience, for thirty years, in Europe, Africa, and America, and on the Intermediate Seas, Reduced under their characteristic genus, Febrile Infection; and the Cure Established on Philosophical Induction* (London, 1790), pp. 175-176.

¹⁰⁷ *Ibid.*, pp. 174-175.

followed by a dose of Peruvian Bark. Robertson believed bark, rather than bleeding, was the most imperative element in treating fevers, for ‘without bark there was no cure’.¹⁰⁸

Robertson was not the only West Indies surgeon who found bleeding ineffective when treating fevers. Leonard Gillespie, surgeon at the Martinique naval hospital, also described his experience with venesection during an outbreak of fever. Prior to becoming the hospital’s surgeon, Gillespie was assigned to the *Majestic* which was stationed in the West Indies. From the 27th November until the 8th of December 1794, the ship was anchored in Fort Royal Bay, during which period Gillespie recorded considerably heavy rains. The ship removed to St Pierre, where she was positioned until the 5th February, at which time the ‘epidemic yellow fever’ had set in among the crew on board. According to the surgeon, the ship lost nine men by the fever out of about twenty; several men were bled though it was ‘not attended with good effects...and all of them died.’¹⁰⁹ Dissatisfaction with the practice was not only limited to naval surgeons. Harrison maintains that ‘there is evidence to suggest that travellers to the West Indies were beginning to place more faith in various chemical and botanical preparations by the end of the century’, thereby suggesting the navy’s reliance on such a harmful practice was considerably influenced by the Enlightenment.¹¹⁰

Fluxes, Dysentery and Diarrhoea Cures

Nutritional deficiencies and foul drinking water resulted in a considerable number of seamen experiencing digestion and intestinal problems. The most common of these diseases were diarrhoea, fluxes and dysentery (also known as the ‘bloody’ flux).¹¹¹ At the time, there was little in the way of effective medicines to alleviate the symptoms and there was even less that could be done to prevent them from occurring. So long as seamen were fed salted meats and had no regular supply of fresh provisions, the navy facilitated the likelihood that seamen would experience difficulties with digestion. The lack of clean water was also to blame for triggering these illnesses. All the Sick and Hurt Board could do was ensure that the surgeons’ chests included approved medicines to treat seamen’s irritated bowels.

¹⁰⁸ Harrison, *Medicine in an Age of Commerce*, pp. 132-133.

¹⁰⁹ Leonard Gillespie, *Observations on the Diseases which prevailed on board a Part of His Majesty’s Squadron, on the Leonard Island Station, between November 1794 and April 1796* (London, 1800), pp. 9-11.

¹¹⁰ Harrison, *Medicine in an Age of Commerce*, pp. 128-129.

¹¹¹ It was unknown until the end of the nineteenth century that there were two distinct types of dysentery which had separate causes and treatments. Refer to Chapter 2 where this is explained more fully.

A remedy to treat fluxes was developed by Dr Cockburn, a Fellow of the Royal Society and the College of Physicians. Previously he had served on board the *Sandwich* under the direction of Captain Meese (later Rear Admiral) where he experimented with various medicaments. He eventually designed a cure for fluxes that was seemingly effective and, according to one of Cockburn's followers, 'the fame of the medicine spread everywhere with[in] our fleets.'¹¹² His follower, Mr Latouche, also claimed that in 1731 Pope Clement XII was cured by Cockburn's medicine which was brought to him by a Roman Abbot from the fleet stationed at Leghorn. The medicine eventually became known as Dr Cockburn's Anti-Dysentery Electuary and became widely used throughout the navy. Prior to his death, Cockburn passed the recipe for the medicine to Latouche in the hopes that the latter would carry on its manufacture and distribution. By 1757, the navy felt that Cockburn's electuary was ineffectual as they had never seen any proof of its efficacy. The decision was therefore taken to discontinue its use.

Having no real combatant for fluxes, dysentery or diarrhoea, the navy was on the lookout for medicines that could cure the considerable number of men suffering from those complaints. It is not surprising that when Edward Hogben submitted his proposal for a cure in 1758, the Sick and Hurt Board were happy to allow for a trial of it. Hogben was authorised to carry out his trial at Haslar and Stonehouse naval hospitals where he was allocated twelve patients between the two locations and ordered to administer the medication in the dosage he deemed appropriate. The Board required him to record his progress and forward the results once the trial period expired. Hogben's results were less than promising. According to his report, four of the men died and one was removed from the ward due to him becoming consumptive (tuberculosis). Of the remaining men, only two were cured and one of those, it was suspected, would have been cured of the flux anyway by ordinary means. Hogben argued that the men provided to him for the trial were ill with other disorders that could not be treated with his medicine. His argument did not convince the Sick and Hurt Board to alter their view that his medicine was inefficacious and would not be generally distributed in the navy.¹¹³

Additional remedies were offered to the Board prior to the War of American Independence, but still none seemed to be of any substance. Richard Dunn claimed his powder, a family secret, was infallible although he was unable to produce vouchers attesting to any cures. Monsieur Pinto, who at one time served with the fleet under the command of Sir George Byng (then Lord Torrington) as clerk to the British Consul at

¹¹² NMM, ADM/E/18, Mr Latouche to the Admiralty, 21 January 1757.

¹¹³ NMM, ADM/F/17, Sick and Hurt to Admiralty, 14 April 1758.

Naples, asserted he had an external medicine which could ‘expel the venom, comfort the bowels and restore the patient his health.’¹¹⁴ Even Edward Hogben submitted another proposal to cure the flux, although he too could not produce certificates attesting to its effectiveness.¹¹⁵ The Admiralty, recalling his prior submission and failed trial, decided it was best to not waste their time on him. An additional method proposed to cure the disorders included bleeding the patient, relieving him of some six to eight ounces of blood, followed by an induced vomiting.¹¹⁶ Another involved using a mucillaginous clyster of common starch or cassava so ‘the intestines are hereby cleared of hardened faeces and the mucilaginous matter.’¹¹⁷ The same surgeon suggested that if fluxes or diarrhoea occurred in the West Indies, surgeons were better off using local medicines. These local medicines included rinds of pomegranate, the bark and gum of the Acason (anacardium), the guava bark and jelly, the seeds of the sea side grape, logwood, bastard locus and the mistletoe of the lemon tree either boiled or made into tea which could prove advantageous. Aside from the local remedies, naval surgeons carried a number of medicines used to treat bowel complaints, particularly dysentery. Among these were calomel and ipecacuanha, both emetics intended to purge the sufferer’s stomach. While taking any of these medicines, the men needed to be placed on a proper diet. Food needed to be light, nutritive and easy to digest.¹¹⁸ Whatever treatments were suggested, seamen continued to be susceptible to fluxes, dysentery and diarrhoea until supplies of fresh, clean water were readily available coupled with the provision of a balanced diet.

Fever Cures

The complex nature of fevers and the lack of understanding as to their causes made diagnosing them incredible difficult. Varying symptoms and disparate surgeons’ reports also make retrospective diagnosis tremendously challenging. Although the Sick and Hurt Board realised Peruvian Bark was effective against malaria on the coast of Africa (and later the West Indies), it was not the only variety of fever they contended with. For most of the eighteenth century, no remedy for yellow fever or jail fever existed. It was assumed that a certain number of seamen would succumb to the diseases and there was simply little that could be done. Fevers were widely believed to be caused by ‘bad airs’, therefore most cures

¹¹⁴ NMM, ADM/E/35, Gulielmi Pinto to Admiralty, 26 March 1762.

¹¹⁵ NMM, ADM/E/28, Admiralty to Sick and Hurt, 18 May 1759. ADM/F/19, Sick and Hurt to Admiralty, 24 May 1759. ADM/E/39, Edward Hogben to Admiralty, 3 July 1764.

¹¹⁶ Anonymous, *The Ship-Master’s Medical Assistant; or Physical Advice to all masters of ships who carry no surgeons; particularly useful to those who trade abroad in hot or cold climates. Containing a brief description of diseases, especially those peculiar to seamen in long voyages. With a concise method of cure, the result of many years practice and experience in all climates* (London, 1777), unpaginated.

¹¹⁷ Credited to John Coakley Lettsom, *A Treatise on Dysentery* (c.1767).

¹¹⁸ Ibid.

were based on ways in which air could be purified. A favoured method was to ‘sweeten’ the air in spaces on board overcrowded vessels. Once diseases like jail fever appeared amongst ships’ companies, cleaning and purifying both the air and the ship were valuable operations in dampening the outbreaks especially when their clothing and bedding were fumigated. One of the earliest recommendations for fumigation came from Dr Maxwell, a naval surgeon. He was instructed to attend the *Cambridge* after it had been infected with a contagious fever and 130 seamen were ordered on shore for treatment; out of those, thirty-two died. To eradicate fevers like the one that took hold of the *Cambridge*, Maxwell proposed that all ships should undergo periodic treatments of smoking their hammocks and bedding using charcoal and brimstone for a period of ten or twelve hours. After smoking, he suggested all bedding and clothing be washed to ensure the illness had been eradicated.¹¹⁹

Ventilation on board was of the utmost importance as any fresh-flowing air had the potential to dispel the bad vapours. The most notable name associated with the shipboard ventilator was Stephen Hales. As a clergyman and natural philosopher, Hales was an accomplished writer of books on those particular subjects, although he personally felt his best contribution was the ventilator named after him. He had originally designed the instrument for use on the roof of Newgate prison in London and when the same ventilator was adapted for shipboard operation, it was immediately found to be clumsy and difficult to use. Hales improved on his idea and produced the ‘Ship’s Lungs’ which was essentially a bellows in a huge box with hinged sides which could be opened and shut by means of rods and worked by hand.¹²⁰ He first proposed his ‘easy and cheap method’ to the Admiralty in 1756 initially for use in naval hospitals and sick quarters around Gosport.¹²¹ Easy and cheap was language the Admiralty could support, especially when Hales had credible references from the army for his method. The results of Hales’ Ventilators were so successful that the Admiralty immediately set forth in organising their distribution to all naval hospitals and throughout the ships of the fleet.

Shipboard cleanliness levels were also vital in quashing contagious fevers. Cleanliness was always considered important, but it was not persistently required on some ships since the Sick and Hurt Board distributed very few written regulations on that matter for the majority of the eighteenth century. That is not to suggest that because there was a lack of written regulation concerning cleanliness, each vessel was a floating pigsty; the state of each

¹¹⁹ NMM, ADM/F/15, Dr Maxwell to Sick and Hurt, 16 May 1757.

¹²⁰ Lloyd and Coulter, *Medicine and the Navy*, pp. 72-73.

¹²¹ NMM, ADM/E/16, Stephen Hales to Admiralty, 14 April 1756.

vessel was down to its captain and his particular shipboard rules. Later in the century, people like James Lind, Gilbert Blane and Thomas Trotter specifically addressed the lack of attention toward naval hygiene and cleanliness in their individual publications. Blane in particular described the importance of scrubbing decks, keeping the ports open to admit fresh air below deck (especially in the West Indies), to fumigate frequently with wood fires sprinkled with pitch or rosin and to utilise ventilators and wind sails to air the lower decks. The last item was especially crucial in larger ships ‘where the mass of foul air is so great, and so remote from the access of the external air, that it [could not] be thoroughly swept off but by such contrivances.’¹²² By 1795, the Sick and Hurt Board (with Blane as one of its commissioners) agreed that contagion was best regulated by ‘cleanliness, fresh air and dryness.’¹²³ Making these items a requirement in the printed regulations at that time demonstrated the Board’s growing willingness to ensure all captains and surgeons were maintaining strict levels of cleanliness and hygiene. The consequence of following such hygienic measures was that ships and hospitals experienced an unprecedented freedom from infectious fevers and it was thought best to maintain their encouragement. Toward the end of the century, the navy’s growing attention to cleanliness meant that the seamen regularly suffering from fevers were new recruits ‘not yet clothed and washed by the navy.’¹²⁴ Bedding and clothing were now cleaned weekly and aired on deck if a ship’s crew was generally healthy, with the process occurring immediately if seamen were taken ill. In particular, decks were cleansed with vinegar and walls were whitewashed. The separation of contagious men from healthy ones further enhanced the overall healthiness of ships’ crews from typhus. Although the connection between body lice and typhus fever would not be made until the nineteenth century, it was apparent to captains and surgeons that dirty clothing and living space were in some way responsible.

To treat some of the tropical fevers, the essence of spruce was considered to be more efficacious than some other remedies. The essence received praise from Rear Admiral Parker who testified to its good effects on patients in the West Indies. Not only had Rear Admiral seen his men suffer from yellow fever, he also became a victim of the disease while at Cape Nichola Mole, St Domingo. As it was assumed his fever was caused by putrid airs, the fleet physician suggested that Parker relocate to either the cool mountains of Jamaica or back to England for the recovery of his health. Parker opted to return to England and it was during that voyage that the master of one of the transports

¹²² Gilbert Blane, *A Short Account of the Most Effectual Means of Preserving the Health of Seamen, Particularly in the Royal Navy* (Antigua, 1780), unpaginated.

¹²³ NMM, ADM/FP/38, Sick and Hurt to Admiralty, 13 November 1795.

¹²⁴ N.A.M. Rodger, *The Command of the Ocean: A Naval History of Britain 1649-1815* (London: Penguin, 2004), p. 308.

administered the essence of spruce which he believed would cure the Rear Admiral. Parker regained his health as did a great number of seamen suffering from yellow fever who were also making the same journey back to England for their health. Because Parker and his officers attested to the spruce's curative qualities, the Sick and Hurt Board immediately ordered a quantity of it sent to ships on both West Indies stations.¹²⁵ However good the Board's intentions were, the essence of spruce was only capable of easing some of the symptoms of yellow fever but was not a cure for the disease.

Fevers continued to ravage the fleet on all stations for the remainder of the eighteenth century and for the duration of the Napoleonic Wars. Jail fevers appeared to lessen a bit mainly due to captains, physicians and surgeons remaining vigilant about cleanliness on board ships and seamen's personal hygiene as well as the institution of 'slop ships' in 1781.¹²⁶ As for the yellow fever, a cure was not forthcoming. The Royal Navy's seamen in the West Indies in the eighteenth century had neither any real hope of escaping the disease nor did they have any real hope of being able to treat it on a large scale.

Scurvy Cures

Depicted as one of the most serious threats to seamen's health during the age of sail, scurvy has been studied and written about more than any other maritime disease.¹²⁷ Scurvy was by no means the principal killer of seamen although it did routinely debilitate them and encourage the onset of other diseases. Once scurvy had weakened the men's immune systems, they became susceptible to other illnesses like fevers, ulcers, fluxes and dysenteries. Contemporary narratives on the causes of and cures for scurvy essentially have a similar theme: James Lind 'discovered' the cure for it, but the Admiralty declined heeding his proposals. This, some claim, resulted in seamen suffering unnecessarily from scurvy for an additional forty years until the navy recognised lemon juice warded off

¹²⁵ NMM, ADM/E/45, Admiralty to Sick and Hurt, 9 September 1796. ADM/F/27, Rear Admiral Parker to Sick and Hurt, 21 September 1796.

¹²⁶ For examples see Mark Harrison, *Disease and the Modern World: 1500 to the Present Day* (Cambridge: Polity Press, 2004), p. 68; Michael Lewis, *A Social History of the Navy 1793-1815* (London: Chatham Publishing, 1960), pp. 410-411.

¹²⁷ For examples see K.J. Carpenter, *A History of Scurvy and Vitamin C* (Cambridge: Cambridge University Press, 1986); Christopher Lawrence, 'Disciplining Disease: Scurvy, the Navy, and Imperial Expansion 1750-1825', in David Philip Miller and Peter Hanns Reill (eds.), *Visions of Empire: Voyages, Botany, and Representations of Nature* (Cambridge: Cambridge University Press, 1996); Brian Vale, 'The Conquest of Scurvy in the Royal Navy 1793-1800: A Challenge to Current Orthodoxy' in *Mariner's Mirror*, vol 94 (May 2008); Stephen R. Bown, *The Age of Scurvy: How a Surgeon, a Mariner and a Gentleman helped Britain win the Battle of Trafalgar* (Chichester: Summersdale, 2003); David I. Harvie, *Limeys: The True Story of One Man's War against Ignorance, the Establishment and the Deadly Scurvy* (Stroud: Sutton, 2002).

scurvy.¹²⁸ Although this is an oversimplification of what has been published, it is fairly representative of the overall perception of the cure for scurvy. The true situation of the events was much more complex than studies conducted by Lloyd and Coulter. Although the Admiralty had been presented with the curative properties of citrus juice during the time of Lind, one must bear in mind that a number of other cures also claimed to do the same thing. It is easy to read the correspondence that passed between the Admiralty and Sick and Hurt Board and presume incompetent behaviour; however, it must be remembered that contemporary views are based on a modern-day understanding of nutrition. At most, all the Admiralty and the medical men of the day knew was that scurvy was triggered by the quality of victuals and digestion difficulties and was not specifically inherent to seafarers. When presented with so many alleged cures, it was difficult for them to establish which were potentially helpful and which were inadequate.

In terms of this thesis, scurvy was intentionally left until last in this chapter because the story has been well covered; however it is nevertheless important to include evidence in showing the pattern of how the Board operated in response to proposed scurvy cures. Brian Vale in his 'The Conquest of Scurvy in the Royal Navy 1793-1800: A Challenge to Current Orthodoxy' quite rightly challenges the views held by many historians that Lind should be credited with a cure. In fact, treating scurvy with citrus fruit had been noted as far back as the sixteenth century. Mariners knew it worked, but they could not explain why.¹²⁹ When Lind carried out his well-documented trials on board the *Salisbury*, even he was not convinced of the lemon's effectiveness. If the Admiralty had heeded his advice to use a 'rob' of lemons and oranges, they would have found it inadequate. In order to make the rob, one was required to boil the fruits, allowing the juice to reduce into a syrup form. During the boiling process, the vitamin C property of the fruit is lost, making the rob highly ineffective against scurvy.

It is worth briefly summarising some of the proposed cures trialled throughout the fleet to fully comprehend the challenging decisions the Admiralty had to make. Elixir of vitriol was suggested around mid-century as an effective means for curing the scurvy and was perceived to be successful, although, as it was mentioned previously, in reality it provided no relief. Next to reach the Admiralty was the proposal from James Lind. By that time he had already carried out his systematic experiment on board the *Salisbury* in which men

¹²⁸ See Christopher Lloyd (ed.), *The Health of Seamen: Selections from the works of Dr James Lind, Sir Gilbert Blane and Dr Thomas Trotter*, vol 107 (London: Navy Records Society, 1965): Lloyd and Coulter, *Medicine and the Navy*.

¹²⁹ Brian Vale, 'The Conquest of Scurvy in the Royal Navy 1793-1800: A Challenge to Current Orthodoxy' in *Mariner's Mirror*, vol 94 (May 2008), pp. 160-175.

suffering from scurvy were issued with separate cures to determine which worked best.¹³⁰ According to Lind, the men who were administered citrus fruits recovered from scurvy the quickest and were able to return to service before the others.

Following his experiment, Lind published his *Treatise on the Scurvy* outlining his work and his findings. Once it had been publically distributed, he wrote to the Admiralty drawing particular attention to the section obliging the navy to reduce the amount of salted meats in the sailors' diet. When the Sick and Hurt Board deliberated over Lind's suggestions for the reduction of salted meats and the distribution of the rob of lemons and oranges, they wrote to three qualified medical men, Dr Isaac Schomberg, Dr James and Dr Hill requesting their opinions. Schomberg, who was a Fellow of the Royal College, submitted a brief response saying only that Lind's proposals were 'ingeniously founded on reason and observation' and they were 'likely to be of public use whenever carried into execution.'¹³¹ Dr James felt the rob of lemons would make the 'most excellent preservative against...scurvy proceeding from putrefactions which the sailors are subject to,' while Hill, who was the surgeon at Woolwich dockyard, felt Lind's method of treating scurvy was 'not quite practicable' and that if shipboard ventilators were kept in good order, they would 'keep a ships company better in health than all the methods ever yet proposed'. Hill believed that providing seamen with vinegar to eat with their salt provision would work best rather than any of Lind's suggestions. Hill also believed elixir of vitriol was more useful in suppressing scurvy until ships could be brought into port.¹³² It is abundantly clear why the medical system failed to realise citrus fruit could be effective in the prevention and cure of scurvy; with three experts consulted, they scarcely agreed with each other.

Amongst some of the other cures put forth, it was proposed that cider could be effective if served on the outbreak of scurvy. The same three doctors were consulted to gather their opinions, and they all agreed cider was preferable to beer and substituting the former for the latter might prove effective against scurvy. Before a trial of the cider could be made, Dr John Fothergill, a London physician, recommended the use of dried apples procured from North America rather than distributing cider.¹³³ These apples, he claimed, could keep in a dry cask for a number of years until they could be 'put into crusts and baked with the liquor they are boiled in' or perhaps 'boiled in paste as a pudding.'¹³⁴ Once the idea of

¹³⁰ Druett, *Rough Medicine*, p. 145. A more in-depth look at Lind's experiment on board the *Salisbury* is contained in Chapter 5.

¹³¹ NMM, ADM/F/11, Dr Schomberg to Sick and Hurt, 6 March 1754.

¹³² NMM, ADM/F/11, Dr James to Sick and Hurt, Mr Hill to Sick and Hurt, 6 March 1754.

¹³³ Dr John Fothergill was the first Edinburgh graduate to be examined and licensed by the Royal College of Physicians. See Harrison, *Medicine in an Age of Commerce*, pp. 53-55.

¹³⁴ NMM, ADM/F/13, Dr Fothergill to Sick and Hurt, 20 September 1756.

using dried apples was put to the Admiralty, they were pleased to sponsor the trial if an adequate supply could be procured for a reasonable price. An agreeable price was reached with Fothergill for 100 bushels to be purchased for use on scorbutic patients. No results of the trial exist; perhaps down to Fothergill's ability to only procure a mere eight bushels rather than the intended 100.

Sour Kraut was the next anti-scorbutic remedy presented to the Admiralty by Dr James. According to him, the kraut had been used with impressive results for relief of scurvy outside of the navy. Sour kraut was easily procured and stored as it was merely cabbage cut small, pressed down and preserved. James felt that the stowage of the kraut would take up less room than peas; moreover, he surmised 'the more sour kraut a sailor eats, the less pork or beef would be wanted.'¹³⁵ Not long after James's submission reached the Sick and Hurt Board, Mr Douglas offered a slight variation on James' proposal. Douglas claimed he had a method to supply cabbages and onions which would keep in all types of climates. His plea was accepted by the Board which allowed him to trial his preserved provisions at Haslar hospital under the watchful eye of Dr James Lind, who had recently been appointed its head surgeon.¹³⁶ The results at Haslar were adequate enough to send Douglas to the Mediterranean with Vice Admiral Saunders to further trial his preservation techniques, which were eventually discounted.

One of Lind's contemporary's on the subject of scurvy was David McBride. McBride (sometimes written as MacBride) suggested malt wort as a suitable cure since fresh provisions, the optimal treatment, were not always available. He believed the wort would affect the fermentation of food once it was consumed by the seamen which thereby reduced putrefaction, making them 'perfectly similar to...fresh vegetable juices.'¹³⁷ His cure was sent for trial on board the *Dolphin*, bound for the Pacific Ocean along with other treatments including portable soup, mustard, vinegar and pickled cabbage in order to ascertain the curative quality of each one.¹³⁸ The trials of McBride's wort proved inconclusive and the Sick and Hurt Board felt that there were not enough positive reports to carry out further surveys at that time. The quest for a cure carried on.

Confusion over the relief from scurvy continued to beleaguer both the Admiralty and Sick and Hurt Board. When Captain Cook's proposed first voyage to the Pacific was in the planning stage, the Admiralty saw their chance to put this issue to bed. If they provided

¹³⁵ NMM, ADM/F/15, Dr James to Sick and Hurt, 2 March 1757.

¹³⁶ NMM, ADM/F/21, Sick and Hurt to Admiralty, 21 July 1760.

¹³⁷ NMM, ADM/E/40, Mr McBride to Admiralty, 27 June 1766.

¹³⁸ Moxly, 'Scurvy' answer in *Mariner's Mirror*, pp. 69-70.

Cook with a variety of treatments, he could carry out a trial on each of them, keep meticulous records of the outcome and eventually report back to the Admiralty. Equipped with the same antiscorbutics as the *Dolphin*, Cook's ship the *Endeavour* also carried sour krout and the rob of oranges and lemons.¹³⁹ During his voyage, Cook maintained relatively healthy crews mainly due to his own initiative and the level of cleanliness he demanded. Scurvy rarely made an appearance during the voyage and the men suffering from illnesses were generally afflicted with fever and dysentery. Upon Cook's return from his second voyage, his report to the Admiralty testified to the efficacy of the malt of wort amongst the other cures. He referred to the wort as 'one of the best anti-scorbutic medicines yet discovered' although he was 'not altogether of opinion that it will cure [scurvy] at sea.'¹⁴⁰ The Admiralty thought so highly of his recommendation since his crews fared so well against the ravages of scurvy, that they threw their weight behind McBride's antiscorbutic treatment.

When it became apparent to the Sick and Hurt Board that McBride's wort did not cure scurvy, they endeavoured to find a treatment that would. Dr Hulme appeared to have the answer. Writing to the Board in 1777, he suggested combining pure salt of tartar (potassium carbonate), water and spirit of vitriol which could be administered to patients until their scorbutic symptoms disappeared.¹⁴¹ The Board were pleased to trial Hulme's medicine on ships sailing for the coast of Africa, North America and the West Indies in the dosage he recommended with surgeons reporting their observations. No results from these trials exist, but it is obvious that his proposed treatment did not work as no further references to the medicine exist.

While the Sick and Hurt Board were trialling prospective scurvy cures, Gilbert Blane was stationed in the West Indies where he was carrying out observations on the connection between scurvy and fresh provisions. He noted that by May 1781 no fresh vegetables had been taken on board ships in the Leeward Islands since January of that same year. According to his detailed data-gathering, there had been 1077 cases of scurvy in the fleet during May. He compared that to the 678 cases in April and 543 in June which was during a time that fresh provisions became available again.¹⁴² Elsewhere, frustration had set in among captains and surgeons who were also coping with the immediate ramifications of scurvy on board their ships. Entirely unsatisfied with medicines furnished by the Board, these men took it upon themselves to purchase their own provisions which they believed

¹³⁹ Ibid.

¹⁴⁰ Carpenter, *A History of Scurvy and Vitamin C*, p. 82.

¹⁴¹ NMM, ADM/E/42, Dr Hulme to Earl of Sandwich, 20 August 1777.

¹⁴² Tröhler, 'Quantification in British Medicine and Surgery', p. 170.

promoted the health of sick men. Captain Caldwell of the *Hannibal* was one of those men. Upon his arrival at Crookhaven, he had 120 men on board suffering from scurvy. He was induced by the surgeon to purchase seventeen boxes of lemons and sweet oranges and once they had been distributed, the sick men recovered so fast 'that many returned to their duty and only two died.'¹⁴³ Captain Curtis of the *Brilliant* at Gibraltar transmitted a similar account from his ship's surgeon and the surgeon from the *Porcupine* on the same station. According to those men, lemon juice proved to be the most effective antiscorbutic they had tried and both had virtually no men suffering from scurvy.¹⁴⁴ Even surgeons from the East India Company urged the Board to use lemons to treat the disease. Stephen Matthews, one of the East India Company's surgeons proposed mixing the juice from lemons and limes with good French brandy, which he found to cure men on the verge of death.¹⁴⁵

It took the Sick and Hurt Board until 1794 to genuinely accept the effectiveness of lemon juice (not the 'rob' of lemons as proposed by Lind). The voyage of Commodore Peter Rainier in 1794-1795 reinforced the belief in the treatment. He used the lemon juice during a continuous voyage from England to Madras which took nineteen weeks with only a temporary appearance of scurvy.¹⁴⁶ Sufficiently convinced of the lemon juice's efficacy, the Board urged the introduction of it in 1795 and by June 1796, it was administered daily as a preventative on ships ordered on foreign stations although ships on the home stations were ordered only to use lemon juice as a cure. Because the juice was considered a medicine, the Sick and Hurt Board were responsible for procuring lemons for production and in 1797 they reportedly secured 30,000 gallons of lemon juice for 9s/9d per gallon.¹⁴⁷ Despite procuring this considerable volume, the allowance to the Channel Fleet remained for curative purposes only and not surprisingly, scurvy broke out among men in that squadron. By 1799 the conditions had become so insufferable that Rear Admiral Berkeley wrote a 'public letter' to the Sick and Hurt Board criticizing the situation and urging them to distribute lemon juice as a preventative and not just as a cure. He claimed that he:

never knew an instance of a ships being out nine weeks that the scurvy did not begin to shew itself, although kept under and certainly very much lessened by the lime [sic] juice which is medicinally allowed to all ships. But this lime juice is never made use of until a scorbutic patient discovers himself which is rarely or ever until the disease has gained a

¹⁴³ NMM, ADM/E/43, Admiralty to Sick and Hurt, 12 February 1781.

¹⁴⁴ NMM, ADM/E/43, Dr Coleman to Captain Curtis, Dr Werner to Captain Curtis, 12 February 1781.

¹⁴⁵ NMM, ADM/E/44a, Dr Matthews to Admiralty, 24 March 1786.

¹⁴⁶ Roger Morriss, *The Foundations of British Maritime Ascendancy: Resources, Logistics and the State, 1755-1815* (Cambridge: Cambridge University Press, 2011), pp. 256-257.

¹⁴⁷ NMM, ADM/F/27, Sick and Hurt to Admiralty, 27 January 1797.

considerable head, where as if it was mixed with his drink from the time the beer was expended and that he was allowed sour kraut with his beef or to eat as a salad it might keep him free from the scurvy, or at least operate upon him so as to keep the disorder from bursting forth in the violent manner which we always see instances of at the period I have mentioned.¹⁴⁸

Berkeley's letter struck a nerve and when the navy had an adequate supply of lemon juice in stock, enough to provide a small dose for every man in naval service, the Board ordered its general distribution to all seamen as a preventative. Finally the dreaded scurvy could be managed effectively through the daily use of lemon juice. According to the Sick and Hurt Board's records, between 1796 and 1805, a total of 289,562 gallons were issued to the fleet in order to combat the disease (no record exists for the peace of 1802-1803) which averaged 36,195 gallons per annum.¹⁴⁹ Although it had taken the Admiralty and the Sick and Hurt Board some time to agree on the cure, it was not necessarily avoidable even if they had heeded the advice of James Lind half a century earlier. It took time for the medical understanding of scurvy to evolve from the assumption it was caused by putrefaction from too much salted meats into a disease caused by a deficiency of fresh fruit and vegetables. Vitamin C itself remained unknown for decades, but even without that specific knowledge, the navy still knew enough about the good effects of citrus fruits to prevent and cure the disease. The conquering of scurvy was, and still is, one of the most popular achievements of the Royal Navy in the eighteenth century.

Conclusion

One of the major duties of the Sick and Hurt Board was to facilitate the organisation and distribution of medicines throughout the fleet. Unfortunately for a long period of their history, the commissioners were not medically trained meaning they lacked sufficient knowledge necessary to make decisions about medicines required in surgeons' chests. It was not until 1793 that a medically trained commissioner was appointed to the Board and

¹⁴⁸ Morriss, *The Foundations of British Maritime Ascendancy*, pp. 256-257.

¹⁴⁹ NMM, ADM/E/50, Admiralty to Sick and Hurt, 14 February 1804. ADM/E/51, Admiralty to Sick and Hurt, 26 September 1805. The breakdown of distribution is as follows:

1796 – 16,011 gallons

1797 – 47,394 gallons

1798 – 37,611 gallons

1799 – 8,289 gallons

1800 – 42,894 gallons

1801 – 48,519 gallons

1802 & 1803 – peace time

1804 – 54,810 gallons

1805 – 34,034 gallons

Total 289,562 gallons (Divided by 8 years is an average of 36,195 gallons per annum).

until that time, they frequently relied on external organisations like the Royal College of Physicians or respected London physicians to provide opinions on treatments.

During this period, medicine was undergoing a period of significant reform which led to a number of surgeons and physicians to question Hippocratic and Galenic teachings. These surgeons preferred to rely on observation and experimentation in order to determine the best method of treatment for a number of diseases. Naval life allowed these surgeons to carry out trials in a 'controlled' environment, much like hospitals did in Britain. The Sick and Hurt Board also employed the policy of trialling remedies which appeared to hold merit. At times, these trials proved useful, although on a number of occasions, the Board were more confused by the results. The best they could do was assess the individual qualities of each proposal as well as the credentials of the submitter.

Until such time as the Sick and Hurt Board was comprised of medically-trained men, medication and treatments ultimately responsible for the increased health of seamen during the majority of the century stemmed from the indefatigable efforts of surgeons at sea. If it were not for surgeons and their captains taking a proactive stance for the issuance of Peruvian Bark or the juice from lemons, limes and oranges, the devastating effects of both malaria and scurvy would have undoubtedly carried on for a number of years. Those men are the unsung heroes of naval medicine in the eighteenth century. They deserve equal recognition for their shipboard trials, advancements in cleanliness, the conquering of scurvy and the subdual of other diseases along with the more notable figures of the day including James Lind, Gilbert Blane and Thomas Trotter. Despite their efforts, they were not able to suppress all naval diseases. Yellow fever, ulcers and ruptures continued to plague the navy for some time. However, it was during this period in the last quarter of the eighteenth century that the groundwork was laid for the near-suppression of nearly all naval diseases in the nineteenth century.

Chapter 4

Health of British Sailors Afloat in the West Indies

Contemporary historians often refer to the eighteenth century West Indies as an unhealthy region where sailors regularly succumbed to their diseases, or weakened them enough to warrant a discharge from service. Even one of the most referenced series of books on naval medicine mentions the injurious situation for seamen in that tropical zone. In *Medicine and the Navy*, Lloyd and Coulter maintain that ‘to be sent out in a big line-of-battle ship to a tropical climate such as that of the West Indies [was],...under prevailing hygienic condition, to invite disease if not death.’¹ Lloyd and Coulter are not alone in suggesting the islands of the West Indies were the most dangerous environment for an eighteenth century sailor. Sir James Watt referred to Antigua as the ‘white man’s graveyard’ in his article about the naval surgeon-cum-abolitionist James Ramsay.² These assessments are typically exaggerated with levels of disease and mortality largely misrepresented. N.A.M. Rodger’s opinion more closely reflects the true situation, claiming that although ‘service in the West and East Indies was unpopular with many...heavy losses on several well-known expeditions should not lead us to exaggerate the real risks of ordinary service.’³ Most certainly Vernon’s attack on Cartagena in 1741 is a superb example of an expeditionary voyage in the West Indies region which experienced severe, but not typical, loss.⁴ And as it will be demonstrated later in this chapter, the Grey-Jervis expedition of 1794 was also an exception to the health rule predominantly due to seamen’s heightened onshore involvement with the British Army. Aside from these particular extreme cases, seamen in the West Indies throughout the second half of the eighteenth century enjoyed relatively good health.⁵ During that time, sickness and mortality were largely under control and the majority of seamen ordered to the West Indies returned to England alive.

Sampling Criteria

To help quantify the levels of sickness and mortality in the West Indies during the period covered by this thesis (1770-1806), I have carried out a survey of all ships on both the

¹ Christopher Lloyd and Jack L.S. Coulter, *Medicine and the Navy 1200-1900*, vol 3 (Edinburgh: E&S Livingstone, 1961), p. 70.

² Sir James Watt, ‘James Ramsay, 1733-1789: Naval Surgeon, Naval Chaplain and Morning Star of the Anti-Slavery Movement’ in *Mariner’s Mirror*, vol 81 (1995), pp. 156-170. Lloyd and Coulter also refer to Antigua as the ‘grave of Englishmen’ in *Medicine and the Navy*, p. 135.

³ N.A.M. Rodger, *The Wooden World: An Anatomy of the Georgian Navy* (London: Collins, 1986), p. 99.

⁴ Frederick Thomson, *An Essay on the Scurvy: shewing Effectual and Practicable means for its Prevention at Sea. With some Observations on Fevers, and Proposals for the more Effectual Preservation of the Health of Seamen* (London, 1790), pp. 6-7.

⁵ As stated in Chapter 2, during the 1770s and 1780s, yellow fever epidemics in the West Indies were almost non-existent. This is clearly reflected in the sample figures contained in this Chapter as well as Appendix 6.

Jamaica and Leeward Islands stations tallying up the total number of men on the sick list as well as the number of men who died in relation to the total number borne. The selected survey years are 1773, 1778, 1783, 1788, 1790, 1793, 1798 and 1803 meaning there was a sample taken every five years (the exception being 1790)⁶. Opting for these dates ensured an equal number of samples were taken during both war and peace time to enable comparisons to be drawn between them. Notable outbreaks of fevers from 1793-1798 have been covered by two of the survey dates in order to compare these more sickly years against the 'average' years. These dates exclude the two joint army-navy expeditions of 1794 and 1796 which suffered high levels of sickness and mortality. Both of the expeditions were atypical from a naval operations point of view. During their joint assignments with the army, seamen and marines were obligated to partake in a number of operations on shore where a higher-than-usual percentage of them were exposed to the mosquito vector. As a result of this greater exposure to diseases contracted on shore, a considerable number of men succumbed to illness or were so severely affected through exposure as to render them useless for all future military service. In order to demonstrate just how exceptionally deadly these expeditions were for both army and navy men, a sample of sickness and mortality figures from 1794 are included in this thesis.⁷

The sampling data was compiled using Admiralty muster books belonging to ships on both West Indies stations.⁸ Once muster books were identified for each ship, figures were recorded from the summary page of each bi-monthly muster submitted to the Admiralty including the number of men 'Borne', the number 'Mustered' and 'Sick'. Ships' companies were typically mustered four times per calendar month meaning that each bi-monthly record had 8 sets of figures (Figure 4.1). Within each bi-monthly muster record, each seaman's name was recorded along with their status on board ship (discharged, dead or

⁶ The year 1790 is the only date that breaks away from the five-year sampling method employed in this thesis. It was selected because it was a year of peace time meaning an equal number of peace and war years were sampled. Also, it is generally accepted that the 1770s and 1780s were relatively healthy and virtually free from fever outbreaks. By selecting the year 1790, it circumvents those 'healthier' decades and therefore more accurately represents the overall morbidity and mortality percentages during the last quarter of the eighteenth century.

⁷ The Jervis-Grey expedition was originally conceived and organised in 1793, however, due to a number of political and military factors, the number of troops was reduced and there was a delay in sailing. When the expedition finally set sail in November 1793, it was eight weeks behind schedule and it was scarcely half of its originally-proposed strength. For the purposes of this thesis, the Jervis-Grey expedition will be referred to as the '1794' expedition because, although the men set sail in 1793, they did not arrive in the West Indies until January 1794. This will limit the confusion in the sampling dates since both 1793 and 1794 are included in this thesis (1793 is included in the 5-year sampling while 1794 is included for reference purposes only. The latter figures can be found on pp. 319-321). For more details of the expedition's organisation and operation, see Michael Duffy, *Soldiers, Sugar, and Seapower: The British Expeditions to the West Indies and the War against Revolutionary France* (Oxford: Clarendon Press, 1987).

⁸ Ships belonging to both stations were extracted from the List Books at TNA, specifically ADM 8/49 (1773), ADM 8/54 (1778), ADM 8/59 (1783), ADM 8/64 (1788), ADM 8/66 (1790), ADM 8/69 (1793), ADM 8/75 and ADM 8/76 (1798), ADM 8/85 and ADM 8/86 (1803).

run) as well as the ships' location at the time the muster was taken. When a seaman was recorded as having died during his service in the West Indies, the date and cause of death (if specifically noted in the muster book) were also recorded.⁹ Following the assemblage of all this data, it was then possible to calculate the percentage of men who suffered from disease or injury and the number of those who died.¹⁰

Time when Mustered.	Place Where.	By Whom.	Muster Letter.	Complement.	Ship's Company.				Marines part of Complement.				Supernumeraries for Wages.				Supernumeraries for Victuals.			
					Borne	Mustered	Checked	Sick	Borne	Mustered	Checked	Sick	Borne	Mustered	Checked	Sick	Borne	Mustered	Checked	Sick
7 April 1783	St. Vincent	English Capt. [illegible]	m	500	253	213	5	5	27	26	1							28	26	2
15 "	"	"	"	352	212	5	5	27	26	1								28	26	2
22 "	"	"	o	251	214	5	2	27	27									27	26	1
30 "	"	"	p	248	241	5	2	27	27									27	27	
7 May	"	"	1	218	211	5	2	27	27									27	27	
10 "	"	"	"	332	325	5	2	27	27									31	31	
23 "	"	"	"	332	325	5	2	27	27									31	31	
31 "	"	"	"	332	325	5	2	27	27									31	31	

Figure 4.1 - Muster Book from HMS *Solitaire* on the Leeward Islands Station, 1783¹¹

There are a few exclusions to note, firstly that the survey was limited to active seamen in the Royal Navy and excludes marines and invalids put on board ships for carriage to England. The second notable exclusion from the survey was men discharged and sent ashore to either sick quarters or hospital.¹² If ships' musters were incomplete in any way, either because the recorded numbers were not complete or if a ship was not actually located on either of the West Indies stations during the survey year, these musters have

⁹ These figures include deaths from all diseases, shipboard accidents, battle casualties, drowning and murders.

¹⁰ Complete graphs for all survey years can be found in Appendix 6.

¹¹ TNA, ADM 36/9574, *Solitaire* Muster Book, April – May 1783.

¹² There are a number of reasons for men released to sick quarters and hospitals to be excluded from this survey. The first one being that the men, once discharged into care ashore, no longer counted toward the ship's borne men therefore distort the figures. The second reason for their exclusion is once the men were put ashore, there is no easy way to track them without consulting a large number of volumes from the ships' pay books series at TNA (ADM 33, ADM 34 and ADM 35). Lastly, a comprehensive review of all surviving hospital musters is included in Chapters 6 and 7 with similar sickness and mortality statistics given.

been disregarded.¹³ Hospital muster books from facilities in the West Indies are not included in the sample, although they are consulted elsewhere.¹⁴ Despite these exclusions, the vast majority of ships serving in the West Indies have useable musters which therefore allows for an accurate depiction of health on board ships in that region during the last quarter of the eighteenth century.¹⁵

Since two samples were taken during the documented fever epidemic from 1793 to 1798, comparisons can be made between those and the other sample years to quantify the heightened levels of sickness and mortality during the outbreaks as well as comparing those two sample years against 1794; a year that had both a fever outbreak and the joint expeditionary force sent from England. As it will be shown, while the outbreak and expedition did increase mortality rates above the average percentage, sickness percentages remained largely unchanged. There were, however, a small number of ships which experienced above-average levels of sickness and mortality during the time of the outbreak. If those particular ships were deemed as being representative of the entire station, it is not surprising that the West Indies were considered by seamen to be deadly. Therefore it is essential to identify some of these individual ships to see just how severely some of them suffered. Following the examination of the survey figures, there are a handful of case studies utilising naval surgeons' journals which provide unique glimpses into the experiences of those men working in the West Indies and also contextualise how diseases affected seamen.

Seamen in the West Indies

The number of men stationed in the Caribbean during the survey period varied greatly and wholly depended on the political state of affairs back in Europe. During times of peace, the combined average number of seamen on both West Indies stations was roughly 2,000 while during times of war, that number grew as large as 11,000 men at any given time.¹⁶ Table 4.1 outlines the average number of seamen on both stations for each of the survey

¹³ The ADM 8 List Books record the name of naval ships at each station. If, however, the individual ships' muster books record them as being in another region of the world, they have not been included in the survey figures.

¹⁴ Hospital muster books are only available from the 1790s onward and therefore are not consultable according to the criteria chosen for the thesis sample. However, the hospital muster books have been employed in Chapters 6 and 7 where West Indies naval hospitals are explored in more depth.

¹⁵ Due to the exclusions outlined above, the following statistics apply to active seamen who were on the muster books on board ships. There are a number of seamen who were discharged to shore (hospital, sick quarters, etc) who are not included in the figures.

¹⁶ The peacetime average was calculated from the number of men on both the Jamaica and Leeward Islands station from the 1773 survey while the wartime average was calculated from the 1783 survey.

years.¹⁷ With such a substantial fluctuation in the number of men, it was often difficult for the navy to anticipate their medical needs well in advance. The majority of medicines and necessaries were sent on board ships from England and typically took a number of months to arrive at their destination. When supplies ran low, surgeons were required to procure them from local agents, although quantities were often limited and extremely costly. One would expect that the enormous fluctuation in the number of seamen, coupled with the difficulty in delivering supplies would have resulted in sickness levels fluctuating considerably. As it will soon be demonstrated, the levels of morbidity did not vary and in fact remained steady throughout the survey period.

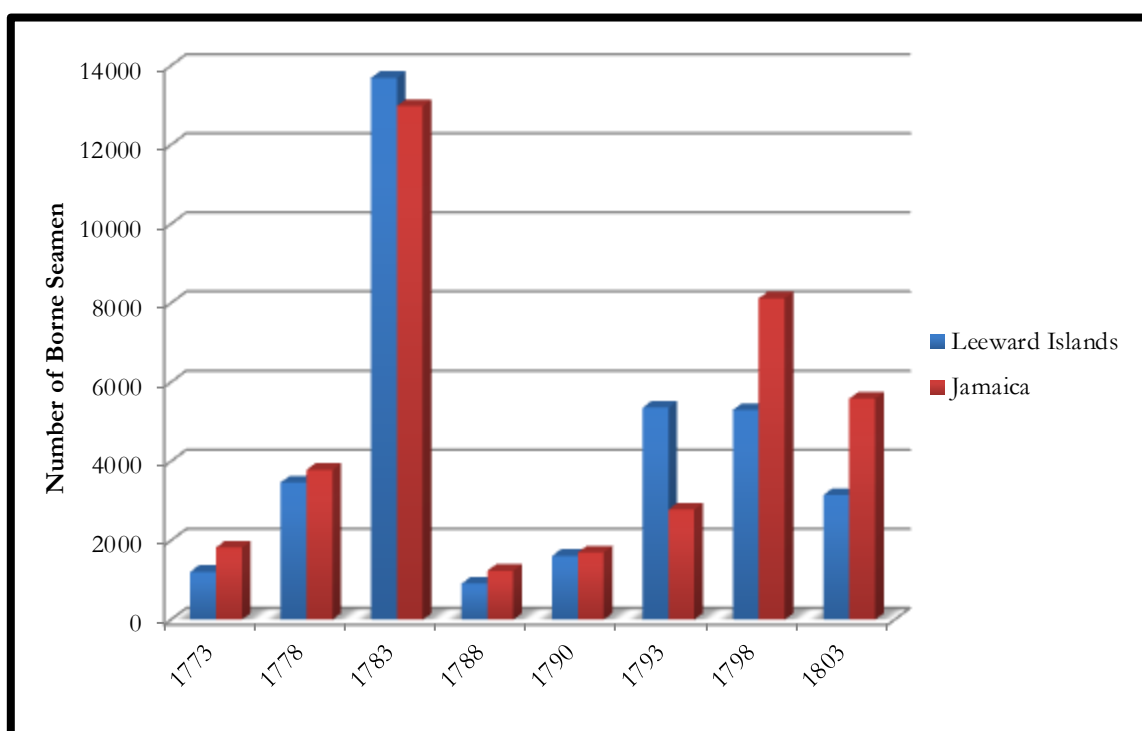


Table 4.1 – Average Number of Seamen in the West Indies, 1773-1803

Sickness and Mortality in the West Indies

Representations of sickness and mortality levels in the West Indies in a number of literary sources have generally been inflated and inadequately convey the reality which existed on board naval ships.¹⁸ In truth, sickness and mortality levels were relatively moderate. Table 4.2 provides an overview of the percentage of sick men on both stations throughout the

¹⁷ The number of men reflected in the Table are taken from the muster books used in the survey, therefore the numbers are here reflect the ships which have complete muster books. To come to an annual average, a per-ship average of borne seamen was calculated. Once complete, those per-ship averages were added together, thereby generating the most accurate number of men on station during the entire year. Simply calculating the monthly borne number does not take into account the vessels which did not spend an entire year on station.

¹⁸ See Lloyd and Coulter, *Medicine and the Navy*: Sir James Watt, James Ramsay.

survey period while Table 4.3 illustrates the mortality rate.¹⁹ It is evident from the figures in Table 4.2 that both stations scarcely surpassed a 3 per cent sickness rate during the end of the eighteenth century. It is interesting to note that the Leeward Islands station was more sickly which can be attributed to a number of factors. One of the principal reasons was that ships' surgeons at Jamaica had a purpose-built hospital at Port Royal at their disposal which employed a full time surgeon: therefore a greater number of men found relief ashore rather than remaining on board their vessels' sick list.²⁰ More remarkable were the mortality figures from both stations. From closer examination of these figures in Table 4.3 it is evident that, by and large, only a small number of men ordered to the West Indies succumbed to disease, injuries and accidents for a majority of the sample years. The most noticeable area in Table 4.3 is the increased mortality figures beginning in 1793 which continue to swell toward the end of the century. This mortality upsurge is a direct result of the well-documented fever epidemic and escalation of naval operations in the region. Peculiarly, a similar spike in sickness did not occur in 1793, leading one to believe the strain of fevers themselves were so severe and fast-acting that many men failed to make it to the sick list or were there momentarily before succumbing to the disease.

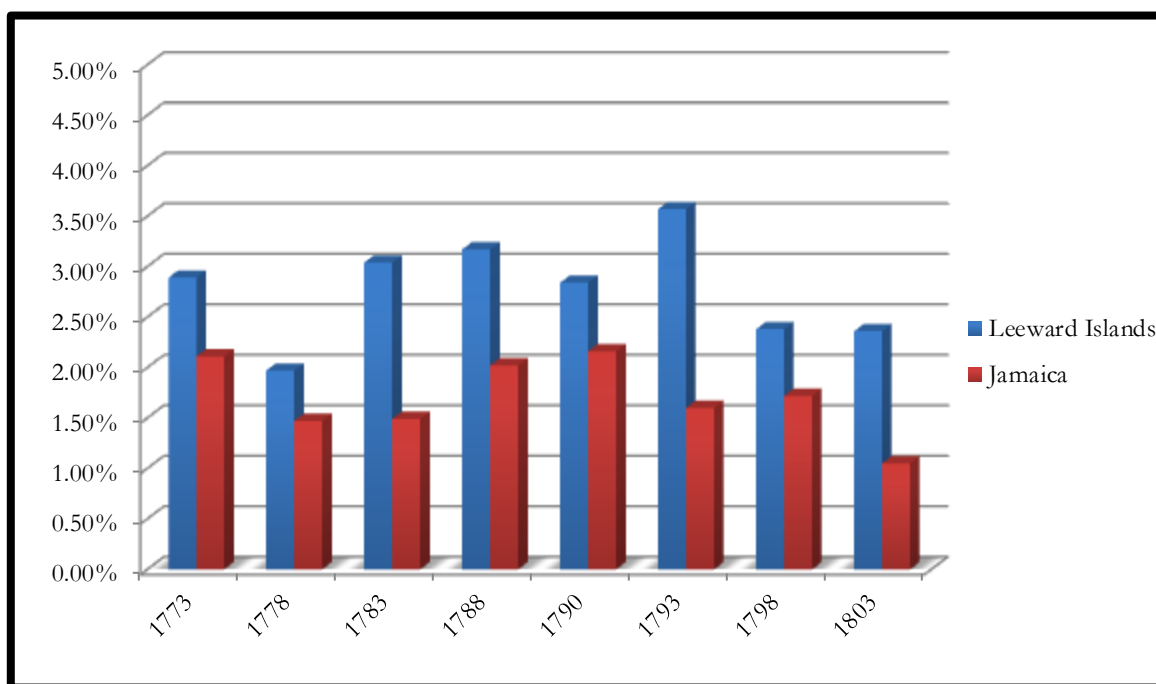


Table 4.2 – Percentage of Overall Sickness on Board Ships in the West Indies, 1773-1803

¹⁹ These figures include deaths from all diseases, shipboard accidents, battle casualties, drowning and murders.

²⁰ Further details of Jamaica hospital, including musters, are to be found in Chapter 6.

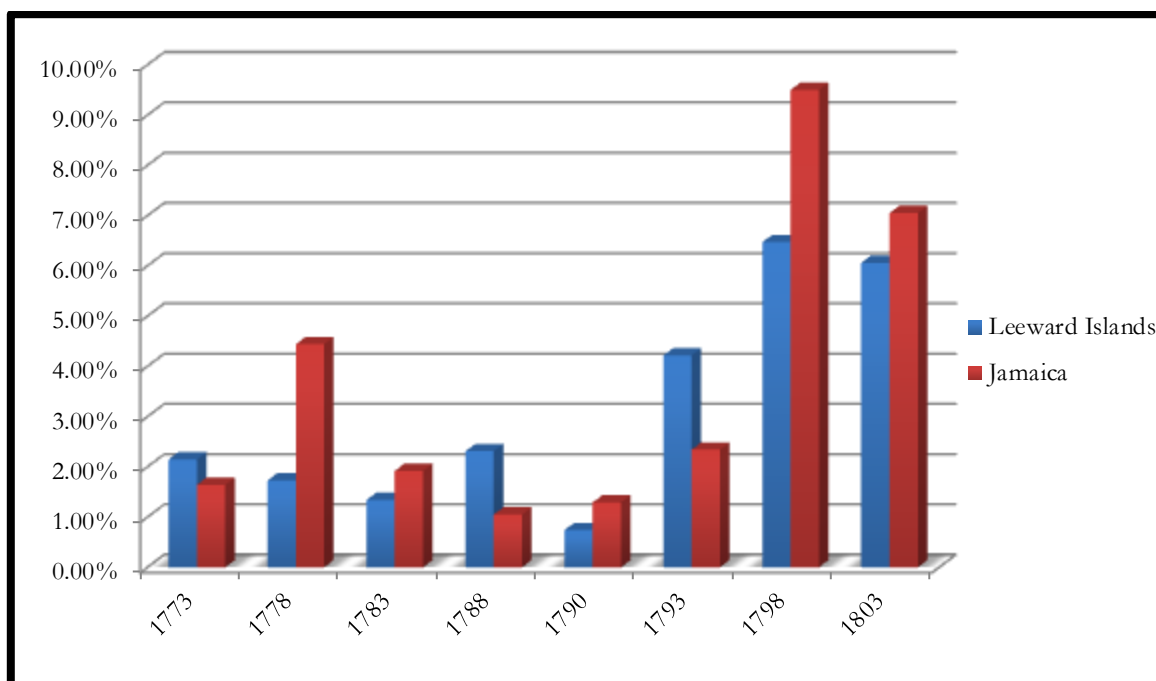


Table 4.3 - Percentage of Overall Mortality in the West Indies, 1773-1803

By citing Duncan Crewe's figures from his book *Yellow Jack and the Worm*, we can put these percentages from the last quarter of the century into a wider context. Crewe's work, which focused on the Royal Navy in the West Indies between 1739 and 1748, includes similar mortality calculations from 1738, 1741 and 1747 for both stations. Using the same sampling method as the one employed in this thesis, Crewe arrives at the following mortality percentages:²¹

	<u>Jamaica</u>	<u>Leeward Islands</u>	<u>Total</u>
1738	6.54%	6.08%	12.62%
1741	17.66%	6.20%	23.86%
1747	7.98%	7.95%	15.93%

The mortality experienced during the 1730s and 1740s was, up until that time, somewhat expected. Epidemics of disease, particularly yellow fever, were most common in the West Indies during the period 1690 to 1770. Not coincidentally, these dates corresponded with the period of the most rapid development in that region, meaning that the proportion of white, non-immune people was at its height.²² Few outbreaks of yellow fever were recorded in the two decades after 1770. By that time, the influx of new residents had tapered, suggesting that the local population were more likely to have been previously exposed to the disease and were now immune. The lack of non-immunes in the local

²¹ Duncan Crewe, *Yellow Jack and the Worm: British Naval Administration in the West Indies, 1739-1748* (Liverpool: Liverpool University Press, 1993), p. 96.

²² David Geggus, 'Yellow Fever in the 1790s: The British Army in Occupied Saint Domingue' in *Medical History*, vol 23 (1979), p. 41.

population meant the spread of yellow fever by the infected *aegypti* was suppressed owing to the lack of fresh arrivals.²³

So if morbidity and mortality had decreased so significantly in such a short period of time, why did the West Indies continue to maintain such a deadly reputation? Correspondence originating from men stationed in the West Indies during the eighteenth century is partly to blame for the over-inflation of disease and mortality perceptions in contemporary publications. Additional writings also influenced the way the West Indies were viewed during this time; particularly those generated by anti-slavery campaigners. It is worth addressing the latter writings in greater detail. These abolitionists were keen to exaggerate real losses in the West Indies for their own motives; chiefly their abhorrence for slavery and the slave trade.

During the 1790s, as a result of mounting criticism from abolitionists, publications emerged such as Elliot Arthy's work, *The Seaman's Medical Advocate: or, an attempt to show that five thousand seamen are, annually, during war, lost to the British nation,...through the yellow fever*, in which it was claimed that a substantial number of seamen were lost to both the naval and merchant service in the West Indies.²⁴ Arthy's publication cites yellow fever cases he observed as well as the deaths resulting from that disease during a number of sailings on board West Indian merchantmen. His mortality figures were partly based his own observations as well as on figures quoted in Mr Baillie's speech to the House of Commons in 1792 on the abolition of the slave trade in which the latter calculated that upwards of 20,000 seamen were annually conveyed to the West Indies.²⁵ Applying Baillie's annual conveyance figure, Arthy arrived at his 5,000 person mortality figure (from the title of his publication) based on his prior observations of a 25 per cent per-ship mortality rate while he served on board West Indian merchantmen.²⁶ There are a couple of points that should be mentioned which influenced Arthy's writing. Most of the ships which routinely voyaged to the West Indies were merchantmen whose crew members customarily spent time on shore and were therefore more likely to contract yellow fever. Moreover, the elevated mortality rates experienced on Arthy's voyages were not common for every ship and it cannot, therefore, be assumed that 25 per cent of merchant seamen sailing to the West

²³ See the 'Yellow Fever' section of Chapter 2 for more information on the fluctuation of the disease in the West Indies during the eighteenth century.

²⁴ Roger Norman Buckley, *The British Army in the West Indies: Society and the Military in the Revolutionary Age* (Gainesville: University Press of Florida, 1998), p. 4.

²⁵ Elliot Arthy, *The Seaman's Medical Advocate: or, An Attempt to Show that Five Thousand Seamen are annually, during War, lost to the British Nation, in the West India Merchants' Service, and on board Ships of War on the West India Station, through the Yellow Fever, and other Diseases and Means, from Causes which, it is conceived, are chiefly to be obviated, and unconnected with the Misfortunes of War or Dangers of the Seas* (London, 1798), p. 25.

²⁶ *Ibid.*, pp. 70-72.

Indies perished due to yellow fever.²⁷ Finally, the period when Arthy was employed on slave ships, was during the fever epidemic of 1793-1798 when the mortality rates were at their highest. By painting such a dire picture of the seamen's probability of survival on board ships, particularly slavers, the author was attempting to sway his readers to the abolitionist movement.

Arthy was not the only naval doctor who used West Indian mortality to push an abolitionist agenda. Thomas Trotter, an extremely influential and well-respected naval physician, also used his experiences from both the West Indian merchant and Royal Navy services to promote the abolitionist movement. Initially, Trotter was employed as a surgeon's mate in the Royal Navy, followed by a single voyage in 1783 on the slave ship *Brookes* serving as its surgeon. This last assignment left a lasting impression on Trotter. The slave ship voyage took him from England to the West Coast of Africa where it picked up its human cargo, then made for Antigua and finally arrived at Jamaica where the slaves were sold. According to Brian Vale:

Thomas Trotter was shocked and sickened by what he had seen on the *Brookes* during the middle passage: the packing of shackled slaves into the hold so tightly that it was impossible to walk between them; the brutality of their treatment; the moaning cries from the lower deck at night as the slaves began to realise their true fate; and the suffocating stench when the hatches were covered in bad weather – all left an indelible impression.²⁸

By the time the *Brookes* returned to Liverpool in August 1784, Trotter left the ship a dedicated abolitionist. Six years later, he recounted various stories from the slave ship to a Parliamentary Committee investigating the slave trade. Trotter painted a dire picture, particularly concerning the way slaves were confined and handled during the middle passage. In his medical writings, he often suggested that the islands of the West Indies were exceedingly unhealthy and encouraged the termination of British services to that region in order to further his abolitionist opinion. Despite the efforts of men like Arthy and Trotter to deter the slave trade through inflated sickness and mortality figures, it continued, meaning the presence of naval forces in the West Indies remained requisite.

Strongly-worded correspondence from a number of admirals, captains, physicians and surgeons sent to the Sick and Hurt Board and Admiralty also perpetuated the notion that the West Indies were enormously unhealthy and deadly. They described the detrimental

²⁷ See the subsequent section in this Chapter with regards to the variance in sickness levels from ship to ship.

²⁸ Brian Vale and Griffith Edwards, *Physician to the Fleet: The Life and Times of Thomas Trotter 1760-1832* (Woodbridge: The Boydell Press, 2011), p. 57.

effects that fevers, ulcers and scurvy were having on ships' crews. Typically these letters only made reference to one particular ship and it cannot be assumed that all ships on station suffered equally during the same time period. Not surprisingly, these letters were generally written during extreme periods of sickness, sometimes desperation, and are not representative of sickness levels on the whole. For instance, writing in 1766, Thomas Pye, then Commander-in-Chief of the Leeward Islands station, reported the *Chatham* was in a 'sickly state' while making no mention of any other vessels.²⁹ He wholly attributed the sickness to the 'drinking of their allowance of rum too new' allowing the men to become susceptible to other diseases. A little less than three years later, when Commodore Man assumed command at Antigua, he reported that there were few men sick with the exception of the recently-arrived *Scarborough* whose crew, he claimed, was suffering from disease.³⁰ To put his idea of a relatively healthy squadron into context, Man included a report on the state and condition of the ships at English Harbour with his letter (Table 4.4). Of the 674 men 'borne' on the five ships, only thirty were sick, which worked out to less than .05 per cent sickness level. However, fifteen of the thirty men belonged to the *Scarborough*, meaning that half of the sick came from only one ship.

Ship Name	Complement	Borne	Mustered	Widows Men	Sick on Board	Sick on Shore
Montagu	243	243	236	6	0	0
Jason	140	141	132	4	0	5
Squirrel	96	103	98	2	2	2
Scarborough	96	104	99	2	15	3
Vulture	66	83	76	2	0	3
TOTALS	641	674	641	16	17	13

Table 4.4 - State of His Majesty's Ships at English Harbour Antigua, 24 August 1769³¹

Within three months, Man wrote to the Admiralty reporting the transformation in health amongst the men. During that three-month period, the *Montagu* had been laid up at English Harbour for the hurricane season with her men put on shore in temporary accommodation. Almost immediately, the ship's master, surgeon, fourteen seamen, the lieutenant and eleven marines died.³² Aside from the dead, the *Montagu* had, according to Man, between sixty and seventy men in the hospital. As her complement was 243 seamen, that meant roughly 25 per cent were in hospital.³³ The other ships at Antigua appeared to have been healthier by comparison and collectively lost twelve seamen and two marines, although one of the dead was Captain Antrobus of the *Jason* who succumbed to a violent fever. The explanation for the higher mortality rate on board the *Montagu* is two-fold. Not

²⁹ TNA, ADM 1/308, Rear Admiral Pye to Admiralty, 9 November 1766.

³⁰ TNA, ADM 1/309, Commodore Man to Admiralty, 24 August 1769.

³¹ Ibid.

³² TNA, ADM 1/309, Commodore Man to Admiralty, 13 December 1769.

³³ That figure is assuming that there were sixty men in hospital.

only had the men been accommodated on shore and were therefore more susceptible to direct contact with fever-carrying mosquitoes, they had been put ashore during the 'sickly season' which occurred from October to January, those being the rainiest months of the year.

Other commanders wrote letters referencing the heightened levels of sickness on both the Leeward Islands and the Jamaica stations during the 'sickly season'. In early 1770, Commodore Forrest wrote from Jamaica reporting the squadron had 'been very sickly for some months past' while in December 1772 Sir George Rodney claimed that his men had also been 'extremely sickly for these three months past owing to the rainy season being more violent.'³⁴ As the months of the 'sickly season' were the same for both stations in the West Indies, it is worth tracking the percentages of sickness and mortality through the calendar year for each of the sample dates.³⁵ Table 4.5 illustrates the combined sickness percentage of men from both stations during each month. It is evident the rainy season triggered a rise in the number of sick men for the majority of sample years; the most noticeable spike coinciding with the much-referenced fever epidemic from 1793-1798. Also discernible is the similarity between both peacetime and wartime years. It appears that men did not suffer more during times of war due to the lack of supplies and provisions. In fact, according to the muster books, during the War of American Independence in 1778 the men enjoyed a relatively healthy year just as they did in 1798 during the French Revolution.³⁶

³⁴ TNA, ADM 1/238, Commodore Forrest to Admiralty, 1 February 1770. ADM 1/239, Sir George Rodney to Admiralty, 19 December 1772. Rodney subsequently acknowledged the fair weather had set in again and the sickness was abating.

³⁵ As demonstrated in Chapter 2, the 'sickly season' in the West Indies coincided with the rainy season in the latter quarter of the year. Some years the rainy months began a tad earlier, but generally ran from October to January.

³⁶ It is worthy of note that during the American War of Independence, there were no major yellow fever outbreaks, therefore sickness and mortality figures remained low.

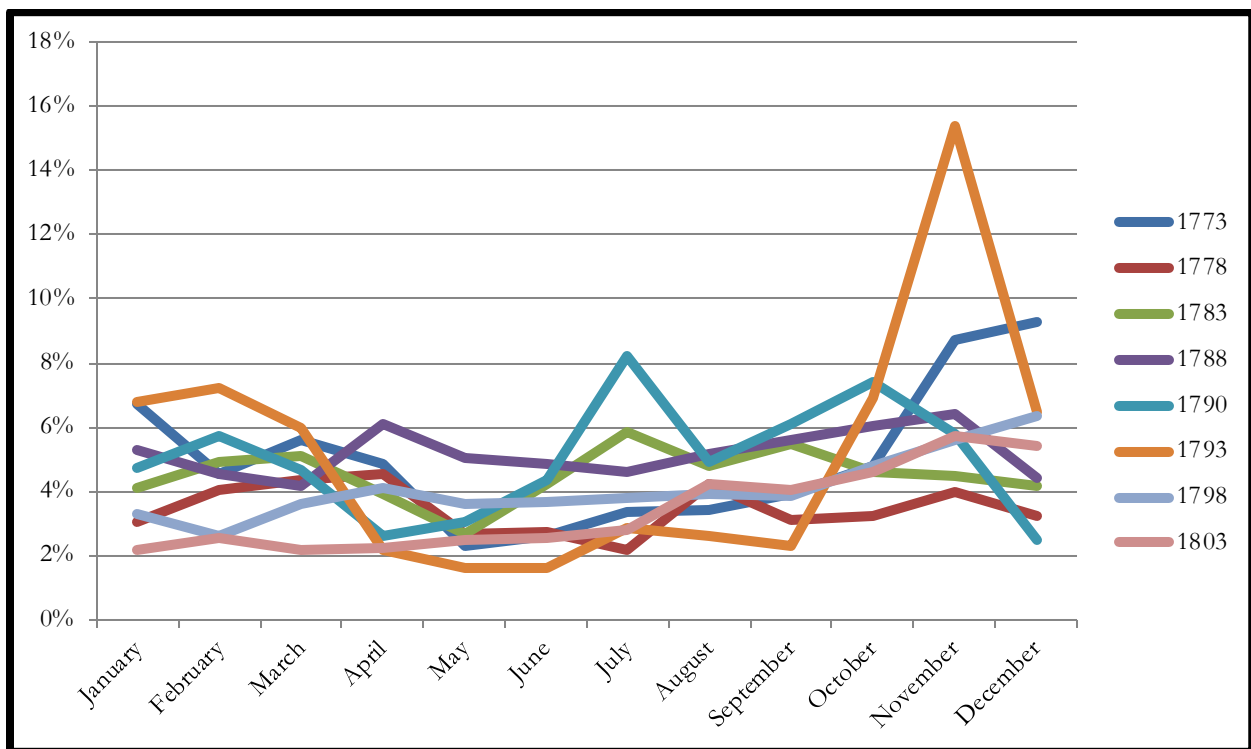


Table 4.5 – Total Percentage of Sick Men from Leeward Islands and Jamaica, 1773-1803

A similar trend emerged for the mortality rate through the calendar year with most men succumbing to their diseases during the ‘sickly months’. Table 4.6 provides the combined mortality figures for both stations. The mortality figures include all types of recorded deaths and are not exclusively due to disease. A moderate number of seamen died as a result of shipboard accidents, naval battles, fighting amongst crew members, murder while on shore or even from acts of nature such as lightning strikes.³⁷ Immediately noticeable in the Table is the large peak in the latter months of 1793 which demonstrates that 15.92 per cent of men stationed in the West Indies died around the time of the yellow fever outbreak. Aside from this significant escalation, on average less than 3 per cent of men died per month while either serving at Jamaica or the Leeward Islands.³⁸

³⁷ Ships’ muster books typically provide details of all non-disease related deaths which have been noted during the survey. It was decided to omit the data from the chapter since there was enough information to produce an entire chapter analysing lightning strikes, amament accidents, drownings, battle casualties, shipboard skirmishes and the like.

³⁸ These figures indude those men which were sent to hospital on shore for treatment and were not discharged from the ship’s muster book. Those men who were discharged either into sick quarters or to hospital would appear in the hospital’s muster books which are investigated separately in Chapters 6 and 7.

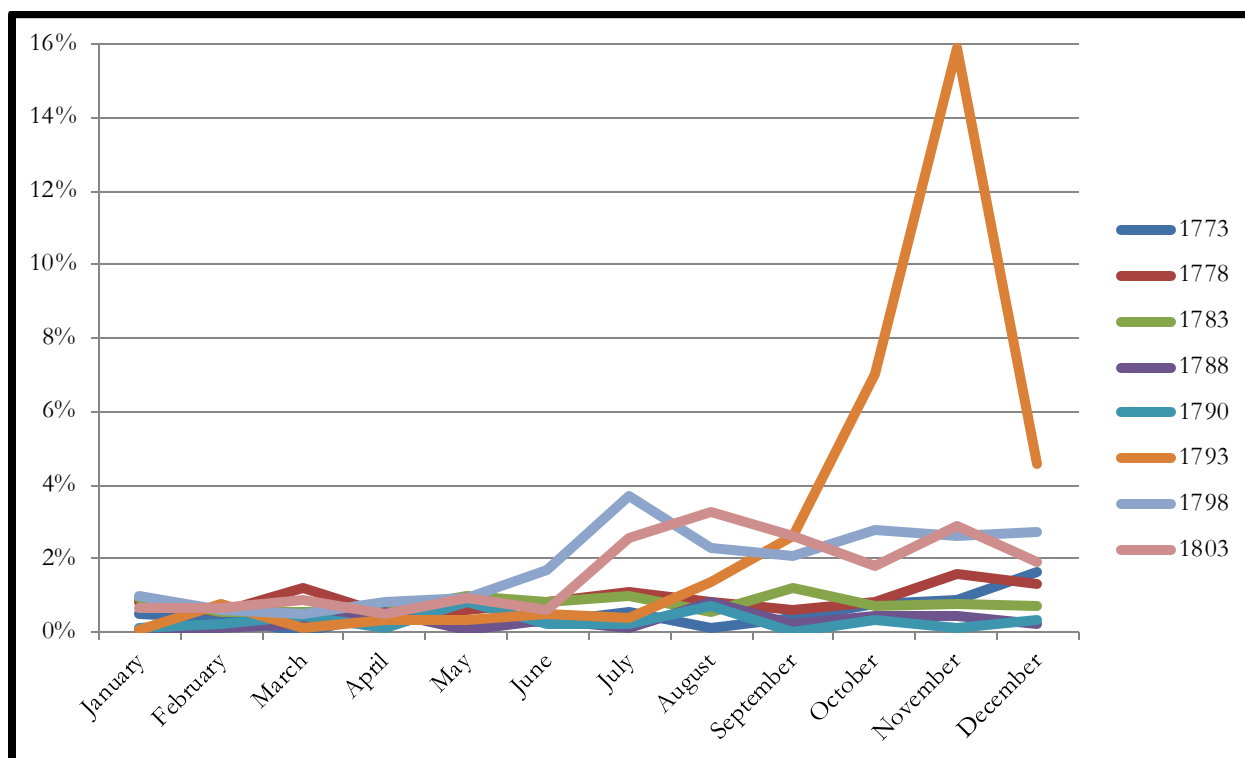


Table 4.6 – Total Percentage of Dead Men from Leeward Islands and Jamaica, 1773-1803

The years selected for the thesis survey are considered ‘routine’ in terms of the navy’s responsibilities in the region. As it has been stated in a previous chapter, ships’ crews were typically kept far off shore to avoid exposure to ‘unhealthy airs’ or ‘noxious land breezes’ which many believed triggered yellow fever.³⁹ Keeping the ships off shore produced the desired effect, but not for the reasons they supposed. Putting a fair amount of distance between the ships and stagnant bodies of water, the favoured breeding ground of mosquitoes, seamen had virtually no chance of coming into direct contact with them unless they were ordered ashore. Despite its best efforts, the navy was not always afforded the luxury of keeping their seamen off shore during their operations in the West Indies. Joint expeditionary forces sent from England to that region in both 1793 and 1795 forced navy personnel to spend more time on land than had been customary. By working so closely with the army, seamen were more exposed to deadly fevers. Morbidity and mortality figures for the 1794 expedition are included in Table 4.7, which demonstrates just how much more deadly land operations were for naval personnel.⁴⁰ It is clear that mortality, rates, particularly on the Jamaica station were much higher than had been the case prior to the expedition. Where most sample years establish that monthly mortality percentages were generally below 2 per cent, the figures from the expeditionary year tell a slightly

³⁹ See Chapter 2, section on Yellow Fever regarding the ‘miasmatic’ theory of disease distribution from land to naval ships.

⁴⁰ These figures were compiled utilising the same method as the above samples. Exact figures for 1794 are also located in Appendix 6.

different story. In June 1794, expeditionary forces were sent from Martinique to Port au Prince with the intent to conquer that island. Of the 518 that had left the former island, 120 were landed at Jamaica as they were deemed too sick to carry on to Port au Prince. Even worse for the joint forces, only 290 were landed at their intended destination; the remainder died from yellow fever during the passage and were buried at sea. That was merely the beginning of the force's suffering. Within two months, 40 officers and 600 men were dead.⁴¹ It is evident from the figures in Table 4.7 that the navy also suffered heavy losses during those same months, particularly among those assigned to the Jamaica station. When the naval surgeon Leonard Gillespie joined Jervis's fleet off Guadeloupe in November, he observed the men to be fairly healthy, 'though weak from the loss of men.'⁴² He discovered that in the six months preceding his joining the fleet on board the *Majestic*, about a fifth of the crews died due to yellow fever. While a 20 per cent average mortality rate per ship was shocking, Gillespie noted that transport ships experienced an even greater loss of life.

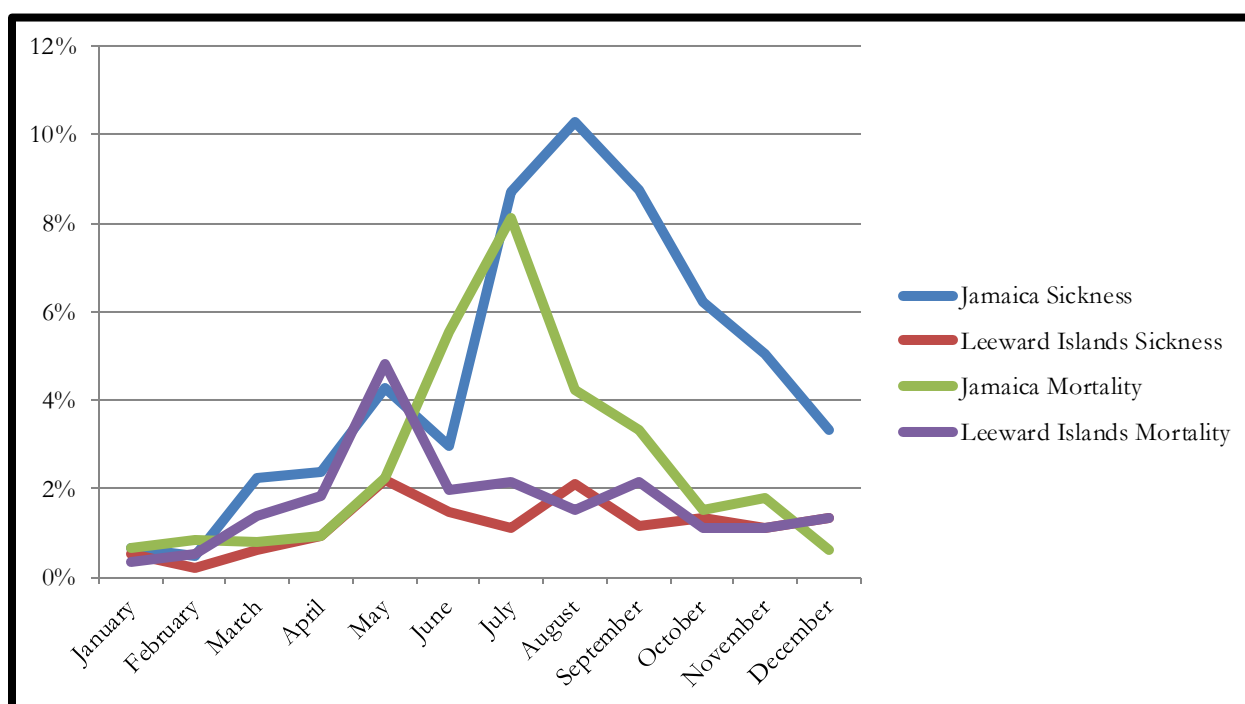


Table 4.7 – Total Percentage of Sickness and Mortality from the Leeward Islands and Jamaica, 1794

The deadly reputation of the Grey-Jervis expedition reached the British public, which was afraid that such substantial military losses would jeopardise their chances of success in the war. British soldiers were also justifiably concerned over the deadly reputation of the West Indies at this particular time. They wrote letters and kept journals which voiced their

⁴¹ Duffy, *Soldiers, Sugar & Seapower*, p. 104.

⁴² Leonard Gillespie, *Observations on the diseases which prevailed on board a part of His Majesty's squadron, on the Leeward Island Station, between November 1794 and April 1796* (London, 1800), p. 8.

reluctance to be conveyed on that particular service as well as their observations while on station. Prior to setting sail with the Abercromby expedition of 1796, Dr George Pinckard wrote:

A degree of horror seems to have overspread the nation from the late destructive effects of yellow-fever, or, what the multitude denominates, the West India plague; insomuch that a sense of terror attaches to the very name of the West Indies – many, even, considering it synonymous with the grave; and, perhaps, it were not too much to say, that all, who have friends in the expedition [of 1795-96], apprehend more from disease than the sword. Such discouraging sentiments I am sorry to find have not been concealed from the troops. The fearful farewell of desponding friends is every day, and hour, either heedlessly, or artfully sounded in their ears. People walking about the camp, attending at a review, or a parade, or merely upon seeing parties of soldiers in the streets, are heard to exclaim, - ‘Ah, poor fellows! you are going to your last home! What pity such brave men should go to that West India grave! – to that hateful climate to be killed by the plague! Poor fellows, good bye, farewell! we shall never see you back again!’ With such like accents are the ears of the soldiers incessantly saluted; and the hopeless predictions are loudly echoed, for the worst purposes, by the designing, whose turbulent spirits would feast in exciting discontentment among the troops.⁴³

At the time Pinckard was writing, morbidity and mortality among British soldiers in the West Indies had remained at the heightened level seen during the previous expedition. The influx of non-immune Europeans in the West Indies continually facilitated the spread of fevers, particularly in army camps scattered among various islands. According to Duffy, overall British army casualties in the West Indies during the wars against France, 1793-1801, were exceedingly high. Some 45,250 European military personnel died, which roughly translates to 51 per cent of white troops.⁴⁴ While the Royal Navy also suffered more during this period due to their participation in amphibious operations, their sickness and mortality figures were not as extensive as those of the army.⁴⁵ The navy’s mortality percentages from the expeditions were exceptional and cannot be regarded as the standard, although they are worthy of note in order to demonstrate the potential loss of manpower during atypical operations.

⁴³ George Pinckard, *Notes on the West Indies: Written during the Expedition under the Command of the Late General Sir Ralph Abercromby*, vol 1 (London: Longman, Hurst, Rees & Orme, 1806), pp. 15-6 in Buckley, Roger Norman, *The British Army in the West Indies: Society and the Military in the Revolutionary Age* (Gainesville: University Press of Florida, 1998), p. 60.

⁴⁴ Figures quoted in Buckley, *The British Army*, pp. 87-88. See also Richard Harding, *Seapower and Naval Warfare: 1650-1830* (London: University College London, 1999), p. 266.

⁴⁵ See Appendix 6 for total numbers of sick and dead as well as percentages for all sample years as well as 1794.

Much of the blame for sickness and mortality in the West Indies stemmed from the apparent lack of supplies (both of food and medicine) which was often quoted as the root of men falling gravely ill. For example, Vice Admiral Byron, Commander-in-Chief at North America during the War of American Independence, notified the Admiralty of 'the sickliness of the squadron' brought on by 'the shortness of...provisions.'⁴⁶ According to Byron, there were numerous sick men but many were not dangerously ill, which made the ships so 'weakly handed', that he was forced to apply to General Grant for a detachment of troops to carry out duties on board. A total of 574 troops, including some army officers, were loaned to Byron's ships under the stipulation that they were not to be carried off station. Since his seamen were not gravely ill, he surmised the damaging effects from reduced crews were not liable to persist once they procured fresh provisions. Despite his optimistic outlook, Byron wrote to the Admiralty three months later reporting the continued sickness throughout his squadron while the naval hospitals struggled to handle the large volume of sick seamen.⁴⁷ To compound the problem, Commodore Rowley, recently-arrived with a squadron from England, added to the delicate situation when a large number of his men instantly fell ill and were reportedly in a worse condition than Byron's.

Some senior men on the West Indies stations, rather than forward complaints to the Admiralty and wait for them to address the shortages, preferred to take action to avoid sickness among their squadrons. Admiral Rodney, an officer who enjoyed a reputation for being generally unprincipled and selfish, was one of these proactive men.⁴⁸ When it came to the health of his squadron, he displayed a genuine and resolute concern. He habitually procured fresh provisions, medicines and necessaries from local suppliers without Admiralty approval at times when he considered it essential. Even his Physician of the Fleet, Gilbert Blane, procured local goods for the benefit of the squadron. When this pair assumed command of the Leeward Islands station in 1779, the overall health of the men belonging to the lower decks was in a period of stability with very few seamen falling ill. Both Rodney and Blane considered their indefatigable efforts as the reason for the unusual healthiness enjoyed by the fleet. However, the pair was unaware that they were in charge during a period when fever outbreaks were relatively unknown in the West Indies. Naive to the prevailing good health in that region, Blane forged ahead with his schemes for improving the seamen's wellbeing.

⁴⁶ TNA, ADM 1/312, Vice Admiral Byron to Admiralty, 4 February 1779.

⁴⁷ TNA, ADM 1/312, Vice Admiral Byron to Admiralty, 13 May 1779.

⁴⁸ More on Admiral Rodney's character is found in Chapter 5.

One of Blane's biggest criticisms was the lack of gratuitous medicines furnished for naval surgeons. When a convoy arrived under the command of Commodore Walsingham in 1780, Blane was frustrated to find that no supply of medicines had been brought out by the latter and took a hard line concerning the exclusion with the Sick and Hurt Board. In a letter to them, he maintained that naval surgeons 'cannot be supposed able to afford the colony price of medicines which is exorbitant' since surgeons were required to pay for their original medicine chests from their own pockets. Blane called on the Board to use their 'superior judgement' to ascertain whether or not it would be advantageous to 'adopt some such plan...that would afford a regular and reasonable supply' of medicines to the West Indies.⁴⁹ When very few provisions were sent from England on the subsequent convoys, Blane, under Rodney's direction, purchased fresh meat and vegetables to curtail the onset of scurvy, sufficient enough at least for the sick, although the pair preferred to purchase enough for the entire fleet.⁵⁰ In addition to procuring fresh provisions, they also obtained medicines from local merchants no matter the cost when the navy failed to send adequate supplies from England.

Once Rodney and Blane set a precedent in the West Indies for allowing surgeons to purchase medicines and fresh food from local suppliers, a number of subsequent commanders ordered their captains and surgeons to do the same. Rear Admiral Rowley, who was appointed Commander-in-Chief at Jamaica in 1782, consented to the purchase of fresh beef which was supplied daily to the numerous sick and convalescing men under his command.⁵¹ Less than a month later, Vice Admiral Pigot, Commander-in-Chief of the Leeward Islands station (relieving Rodney) reported his seamen were enjoying 'remarkable health.' This was due, according to Pigot, to his supplying the seamen with additional rations of vegetables and milk at the rate of eight pence per man per day. He claimed that he 'not only saved a great many men but [also] a sum of money to government as each man at the hospital stands at near three shillings per day.'⁵²

When the War of American Independence drew to a close in September 1783, the number of men stationed in the West Indies was greatly reduced.⁵³ Correspondence from captains and surgeons concerning the health of the men during this peace time was infrequent; however, once the fever outbreak began in 1793, letters complaining of the heightened

⁴⁹ Ibid.

⁵⁰ TNA, PRO/30/20/9, Gilbert Blane to Sir George Rodney, 14 April 1781.

⁵¹ TNA, ADM 1/242, Rear Admiral Rowley to Admiralty, 22 December 1782.

⁵² TNA, ADM 1/313, Vice Admiral Pigot to Admiralty, 15 January 1783.

⁵³ Refer to Table 4.1 for the average number of men stationed at Jamaica and the Leeward Islands in 1788 and 1790. On average the combined number of men on both stations did not exceed 2,000.

levels of sickness and mortality arrived more regularly. Writing from Martinique in 1795, Admiral Laforey described the severity of illnesses among the entire fleet, particularly on board the *Majestic* where a malignant fever was raging. At the time of writing Laforey claimed that ship had lost 110 men with nearly an identical number on shore at Gros Islet hospital.⁵⁴ He speculated that the ‘sultry weather with the stagnation of air [during] hurricane season has brought [the fever] forward with great violence.’ He was anxious about returning men to their ships once they had recovered on shore because he feared they might infect their healthy shipmates. Laforey ensured that each ships’ ballast was changed, fumigated and washed with hot vinegar as that was, ‘where the seat of the infection [was] thought to lay.’ If those measures failed to eradicate the infection, Laforey believed the *Majestic* would be lost for that year’s service due to the lack of seamen to sail her. As this was during a time of war with France, the loss of a 3rd rate ship would have been a serious detriment to the service; however the infection was eventually eradicated and the *Majestic* remained in service.

The health situation in Jamaica during the French Revolution was slightly better than that of the Leeward Islands with overall sickness remaining low, except in a handful of ships.⁵⁵ In February 1797, Admiral Sir Hyde Parker wrote to the Admiralty regarding the poor state of health on board the *Hannibal*. He claimed the crew was suffering from so many cases of severe scurvy that the ship was unable to go to sea.⁵⁶ By April, he reported that ‘through the means [he] adopted at purchasing port wine and vegetables the dreadful progress of the scurvy is almost subdued among the ships [sic] crews.’⁵⁷ Parker’s efforts were so well respected that the Admiralty requested he divulge the quantities of fruit, vegetables, port wine and lime juice he distributed to cure sick seamen in such a short period of time.⁵⁸ Parker found, ‘from experience that no quantity could be fixed on as a remedy for the evils they were to correct, and that the procuring of these articles was equally difficult and uncertain.’ When he was able to procure these items, he instructed the captains and surgeons to distribute whatever quantities they found necessary. Parker claimed that, ‘had it not been for such exertion on [his] part, and attention on the parts of the captains and surgeons, this squadron...would have been rendered unfit for any service.’ Although Parker was boastful of his methods, he was correct. Had it not been for his authorisation to procure provisions, scurvy no doubt would have continued to wrack his squadron. And

⁵⁴ TNA, ADM 1/317, Admiral Laforey to Admiralty, 1 October 1795.

⁵⁵ See Tables 4.2, 4.5 and 4.7 for sickness figures. Sickness figures for Jamaica in Table 4.7 are rather high, although, as it has been discussed, the joint expeditionary operation exposed an atypical number of seamen to disease on shore.

⁵⁶ TNA, ADM 1/248, Admiral Sir Hyde Parker to Admiralty, 14 February 1797.

⁵⁷ TNA, ADM 1/248, Admiral Sir Hyde Parker to Admiralty, 27 April 1797.

⁵⁸ TNA, ADM 1/248, Admiral Sir Hyde Parker to Admiralty, 7 October 1797.

despite his authorisation being ‘a heavy expense to the public,’ Parker felt it his ‘indispensible duty to adopt [it]’ in order to preserve ‘such a valuable class of men as the seamen are.’

Health of Individual Ships

Health on board most ships depended heavily on the vigilance of the captain, the surgeon and the men themselves. Ships which were rigidly disciplined by their captains tended to enjoy a certain freedom from disease, even ships of a large size. There were ships that suffered severely from a number of diseases, mainly fevers and ulcers, which were brought on by a diminished level of discipline on board. When captains failed to direct seamen to launder themselves, their clothing and their bedding on a regular basis, they inadvertently allowed germs to propagate and infect other members of the ships’ company. The focus in this section will be on a number of individual ships on the West Indies stations to demonstrate how important it was to keep a clean and tightly-run ship and to examine how poorly some ships fared in the West Indies.

At this point it is worth briefly revisiting the survey figures to do a more in-depth study on selected ships which were known to suffer more severely. In doing so, sickness and mortality levels on board these individual ships can be emphasised as well as recognising the impact these amplified levels had on a ship’s company. Beginning with 1773, just prior to the outbreak of the American War of Independence, the number of seamen on the Leeward Islands station averaged around 900. Statistics from the survey demonstrate an average sickness rate of 2.89 per cent and a 2.15 per cent mortality rate.⁵⁹ As was the typical yearly trend of sickness, the lowest percentages occurred in the spring and summer, while the highest monthly figures tended to occur in early autumn through winter. Figures at Jamaica follow the same pattern just prior to the war, although that station was more populated. Despite the larger number of seamen, they experienced less sickness, though the figures are marginal.

Somewhat surprising were the figures for 1778, the next sample year, calculated during a time when England was at war. Although, on average, the number of men on each station was double that of the first survey in 1773, the number of men reported sick was nearly 1 per cent less. Even when war had been raging for a number of years, the sample from 1783 tells a similar story. In the Leeward Islands, where the number of men averaged 5,500 and at Jamaica where the number averaged 4,900, sickness figures continued to be

⁵⁹ These figures are taken from Table 4.2 and Table 4.3.

relatively low with the former at 3.04 per cent and the latter showing 1.49 per cent. Mortality figures were similar with 1.34 per cent in the Leeward Islands and 1.92 per cent at Jamaica. During these first three survey years, most ships suffered minimally with none exhibiting above-average figures.

At the outbreak of fever in 1793, a number of ships were severely attacked and suffered a comparatively higher rate of mortality. The outbreak did not begin until September: therefore Table 4.8 highlights from August until the end of the year and focuses on the four sickliest ships on both stations in order to demonstrate how seriously fevers affected individual ships. Ships from the Leeward Islands station were the *Experiment*, *Nautilus*, *Solebay* and *Blanche*, while the ships from Jamaica were the *Flying Fish*, *Musquito*, *Hermione* and *Europa*. It is evident from the figures that the Leeward Island's ships endured a much worse attack than their counterparts at Jamaica. So severely hit were the *Experiment*, *Nautilus* and *Solebay* that nearly 35 per cent of their crews entered the sick list between September and November. Ships from Jamaica fared better with none of the four worst-hit suffering over 10 per cent.

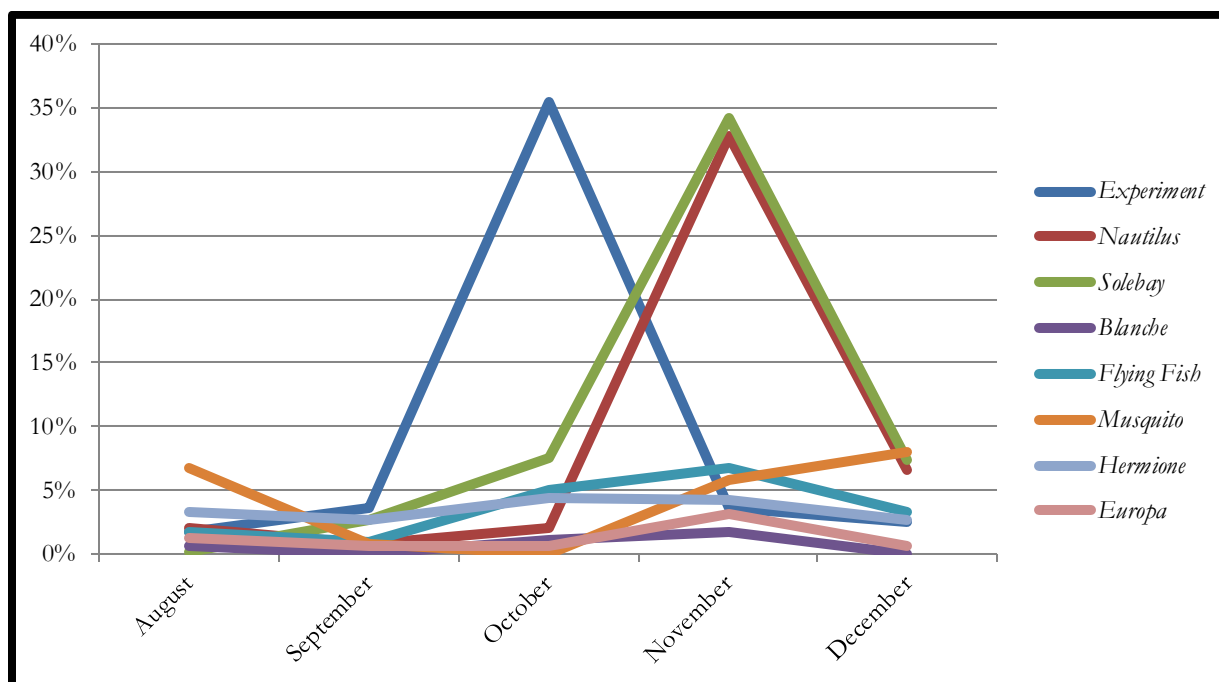


Table 4.8 – Highest Level of Sickness on board Ships at Leeward Island and Jamaica, 1793

The mortality rate during the same months and among the same ships is shown in Table 4.9. Not only were seamen rapidly contracting yellow fever, they were also succumbing to the disease almost immediately. Not surprisingly, the three ships with the highest sickness percentages were also the ships with highest mortality rates. What is interesting to observe is that despite those three particular vessels having similar sickness percentages, their

mortality rates are noticeably different and it appears the *Experiment* and *Nautilus* were able to better manage the fever once it took hold and ultimately lost fewer crew members, although both suffered significant mortality rates. The *Solebay* suffered considerably, losing over 50 per cent of its entire ship's company during November alone!

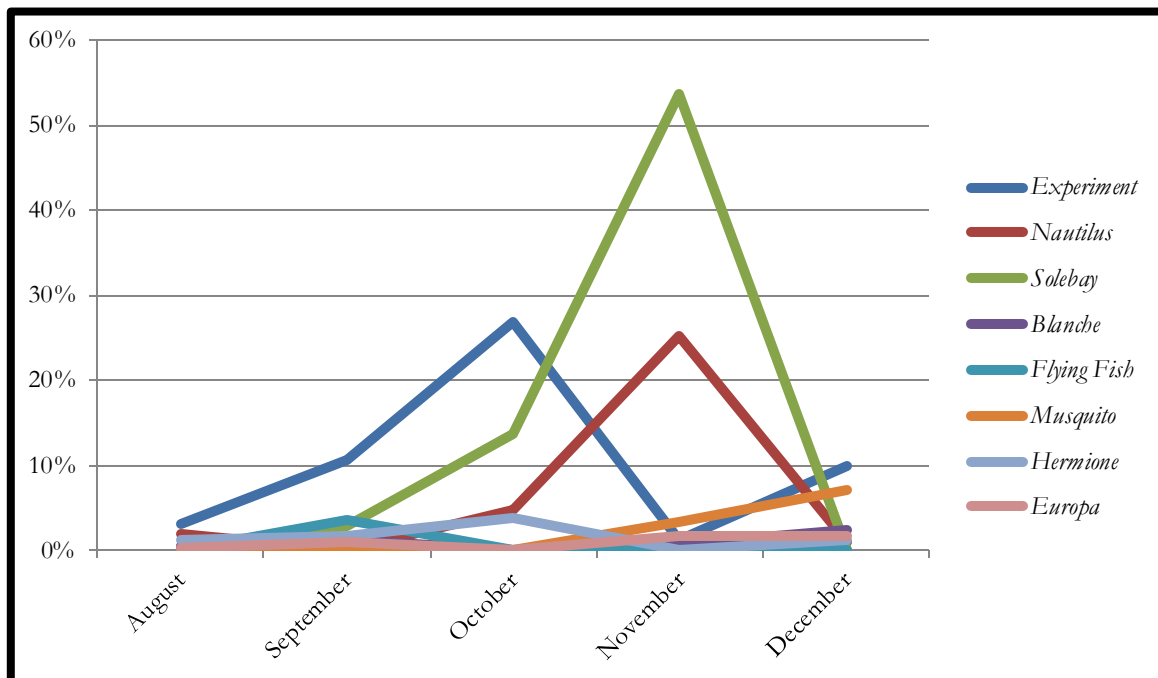


Table 4.9 - Highest Level of Mortality on board Ships at Leeward Island and Jamaica, 1793

Towards the end of the fever epidemic which lasted until 1798, similar sickness and mortality patterns emerge. Using the same criterion as above, the four ships with the highest percentage of sickness are shown in Table 4.10. The Leeward Islands station is represented by the *Vengeance*, *Requin*, *Concorde* and *Lapwing* while the Jamaica station is represented by the *Thunderer*, *Brunswick*, *Magicienne* and *Diligence*.⁶⁰ An obvious difference, aside from the overall sickness levels being far less than in 1793, is that the *Thunderer* suffered from an extremely high level of sickness in August which then tapered off at the same time that sickness on the other ships began to increase. After the reduction of sickness, the ship resumed a higher percentage toward the close of the year. The explanation is simple; since these figures were collected using the sick list, the sharp decline and rise indicate a large number of sick men were sent ashore to hospital (hence the decline) after which time the remaining healthy crew members contracted fevers (hence the

⁶⁰ The *Mosquito* (from the Jamaica station) was incredibly sickly during this period, however she made her way to Nassau, Bahamas in July and left for England in mid-September and has been excluded on the grounds that a full survey could not be made.

rise). Mortality trends in 1798 were similar to 1793 although the maximum percentages were considerably less during the former.⁶¹

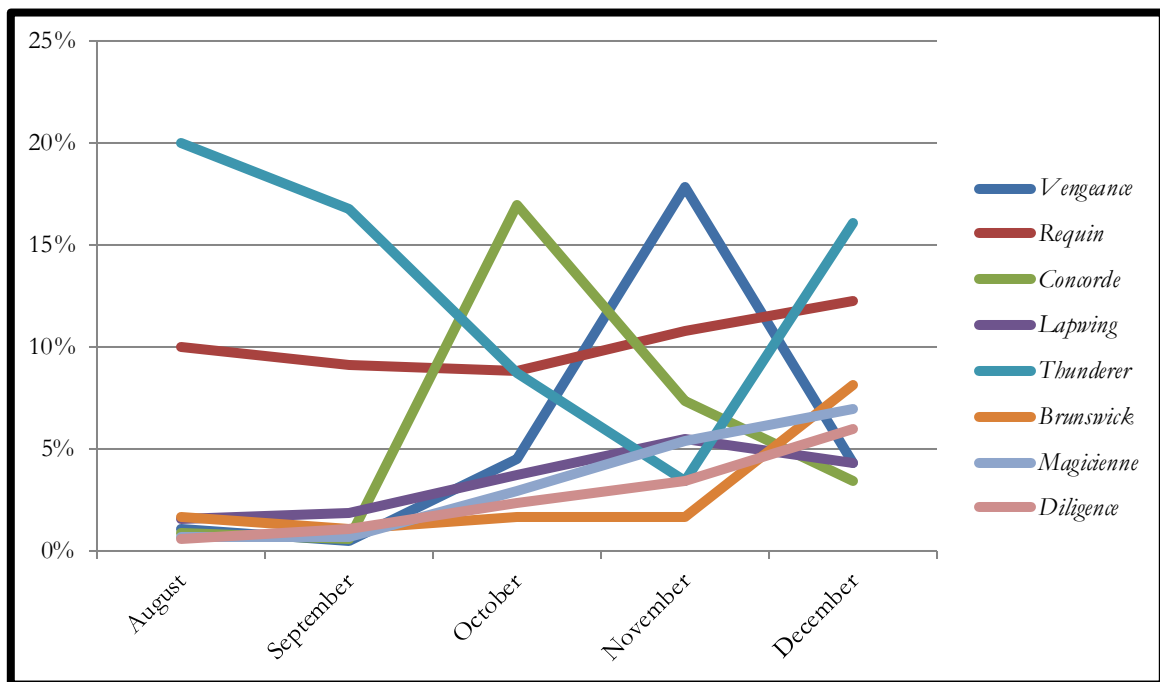


Table 4.10- Highest Level of Sickness on board Ships at Leeward Island and Jamaica, 1798

Before considering the next sample year, 1803, it is worth examining a number of letters received from the West Indies regarding the health of the seamen to ascertain how individual ship in the early nineteenth century coped with disease. In December 1801 Dr Blair, physician to the Jamaica squadron, reported the total number of sick between the 5th and the 10th of that month was 247. The total number of seamen on station during December was roughly 8,000, meaning that less than 1 per cent were sick. At the same time, Blair also submitted a breakdown of the illnesses on individual ships on that station (Table 4.11). The most prevalent ailment by far was ulcers; it was more than double the number of scurvy patients, the second most frequent disease. Ulcers affected nearly every ship in the squadron, while scurvy appeared to affect the *Captain* more than any other. The number of fever complaints were insignificant which is unusual for that time of year when they typically raged.

The respite from fevers did not last long as they were reportedly raging again in the Leeward Islands while it was under the command of Commodore Hood at the end of 1802. He wrote to the Admiralty describing the malignant fevers on board the *Castor*, *Emerald* and *Drake* as well as at the naval hospital at English Harbour. The *Castor* sustained the loss of a lieutenant, her surgeon and upwards of thirty men while the *Emerald* lost two

⁶¹ Seeing as the trends are similar (not the figures) there is no need to represent the pattern here with a Table. Sickness and mortality figures for the entire year are found in Appendix 6.

lieutenants and upwards of sixty men, all of whom died after contracting fevers.⁶² While the *Drake* was disabled by sickness, it had not suffered such a high number of mortalities. All three ships appear in the survey for 1803 and are worth investigating in greater detail here. In January there were nineteen ships belonging to the Leeward Islands squadron which were scattered amongst a number of islands including Antigua, Trinidad, Barbados and Aruba. Of those nineteen, seven ships reported no one on the sick list in January; the *Heureux*, *Osprey*, *Ulysses*, *Asp*, *Steady*, *Blenheim* and *Netley*. The remaining twelve suffered from some degree of sickness which is represented in Table 4.12. As Hood indicated in his letter, the *Drake* was suffering considerably from a malignant fever, while the *Castor* and *Emerald* appear to have overcome the worst by January. The *Heureux* was attacked by the same malignant fever after she sailed from Antigua, but its spread soon came under control.⁶³

Ship	Ulcer	Slight sores	Venereal	Scurvy	Fever	Yellow Fever	Rheumatism	Flux	Catarrh	Total Sick
Sans Pareil	24		2					11	3	40
Captain		20		30						50
Goliath	4	11	2	13	3		4			
Carnatic	21		1				1	2		25
Elephant	1		5				1	1		8
Brunswick	12		4			1				17
Ganges	20		3	2				4		29
Abergavenny	7		1	1	2					11
Thelampus	1		4	1			3			9
Apollo	1							1		2
Crescent	6		1							7
Tartar		1	4							5
Nereide	1		4	1						6
Juno	4	1	3		1		1			10
Circe	8								1	9
Bourdelois	4									4
Tisiphone	1		1		1					3
Calypso			2							2
Pelican			4					2		6
Wilmington			1							1
Mosquito				2			1			3
State of Each Disease	115	33	42	50	7	1	10	22	4	247

Table 4.11 – Health of Jamaica Squadron inspected between the 5 and 10 December 1801⁶⁴

⁶² TNA, ADM 1/324, Commodore Hood to Admiralty, 28 December 1802.

⁶³ Ibid.

⁶⁴ NMM, ADM/E/48, Dr Primrose Blair to Admiralty, 11 February 1801.

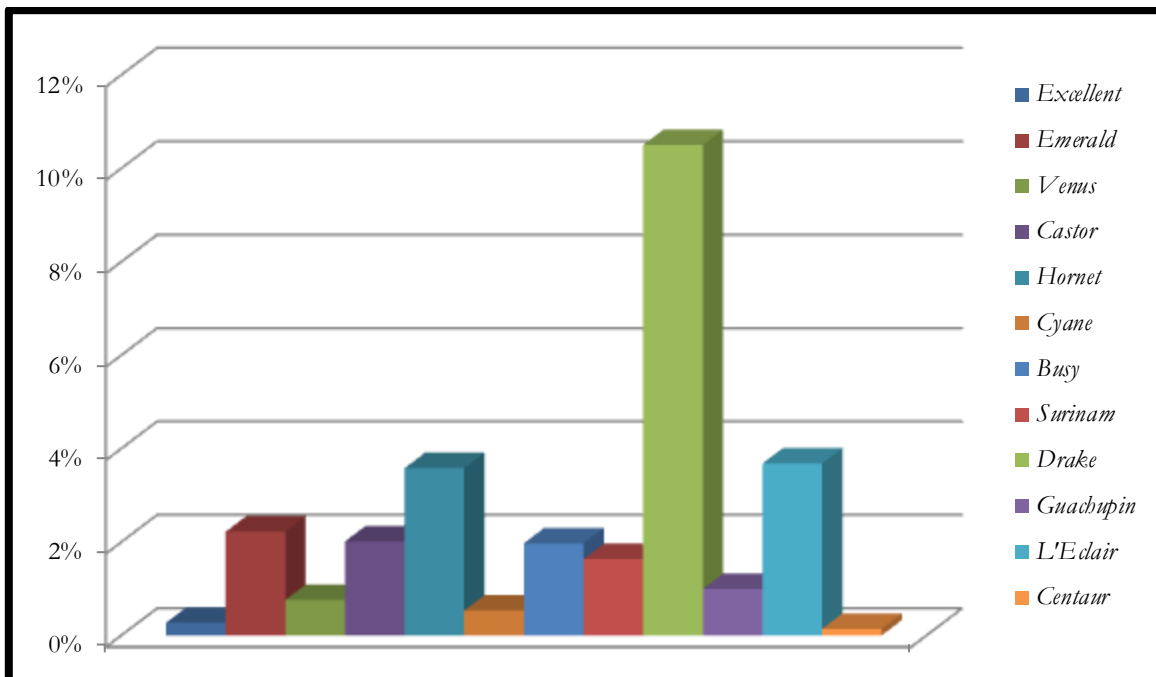


Table 4.12 – Percentage of Sick Seamen on board ships in the Leeward Islands, January 1803

By February 1803, sickness on board the *Drake* reduced to 7.5 per cent and declined even further by March. As the year progressed, sickness on board the *Drake* returned and reached nearly 12 per cent at its highest level (Table 4.13). Other ships on the station during the survey year which also suffered terribly through the sickly season were the *Centaur* and *Osprey*. The number of sick grew steadily on these three ships until the *Centaur* exceeded 10 per cent and the *Osprey* reached nearly 7 per cent. These ships were the worst-hit and it should not be assumed that the entire squadron was equally as sick. Included in Table 4.13 is the average number of men on the sick list in the Leeward Islands, which gives an indication of the overall health of the squadron in relation to the worst-hit ships.⁶⁵ The average percentage remained extremely low, and it was only during the sickly season that it rose above 4 per cent. That average translates to roughly 100 seamen on the sick list out of an approximate 2,300 seamen borne per month. Put in those terms, the figures clearly indicate the men were reasonably healthy and capable of executing their jobs to keep the squadron mobile.

⁶⁵ The average number does not include the number of men ashore in hospital or in sick quarters. Those figures are reported separately in Chapters 6 and 7.

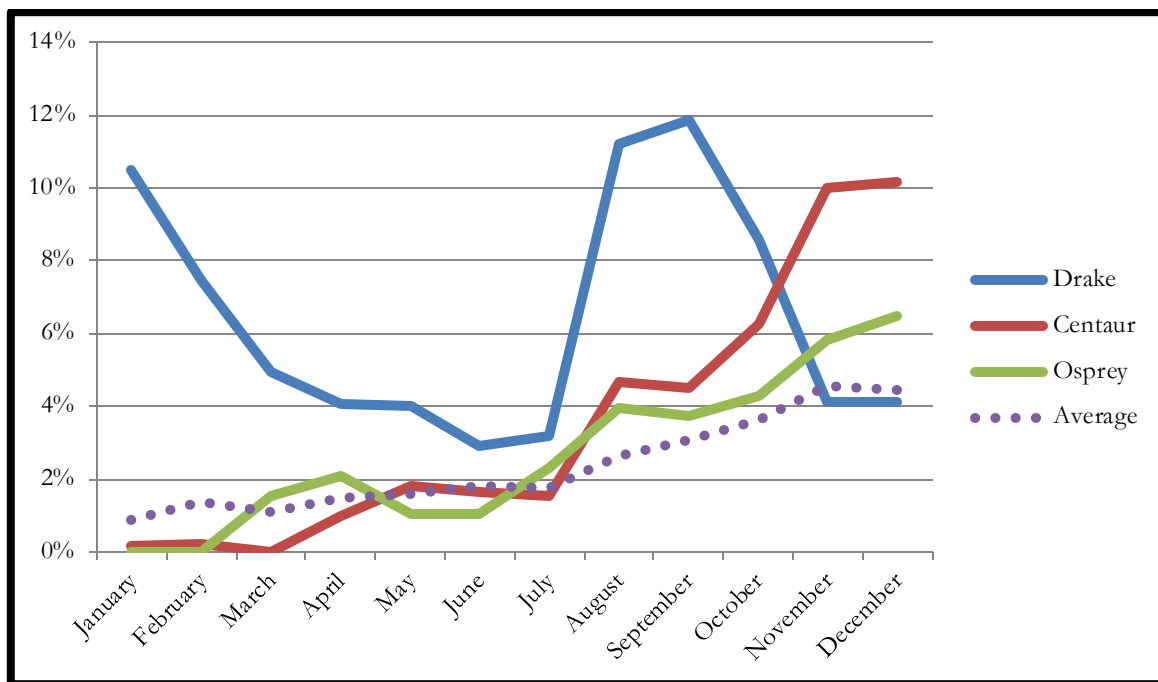


Table 4.13 – Sickness Levels on board the Unhealthiest Ships in the Leeward Islands, 1803

In June of the following year, Commodore Hood, writing from Martinique, described the yellow fever which was raging again at English Harbour. Dr Cole, the surgeon at the Antigua naval hospital, described the fever as being more virulent than ever before, ‘making it the greatest havoc’ on the squadron.⁶⁶ Worst hit was the *Caryfort* who lost her purser, the surgeon, ‘some young gentlemen’ and several seamen and marines.⁶⁷ The *Caryfort*’s principal loss was Captain Fanshawe who also succumbed to this rash of yellow fever. Hood reasoned that Fanshawe’s ‘zeal under the trying situation of his ship appears to have been unremitted and probably the cause of his demise.’⁶⁸ Captain Nourse, the senior officer at English Harbour, endeavoured to control the fever outbreak by removing the invalids and healthier patients from the hospital and put them on board the *De Ruyter* in order to free up crucial space. Nourse believed that most of the men fell mortally ill during their reception on shore at the capstan house which was used as a ‘receiving house’ until the men could be moved to the hospital. He considered it imperative to open up space at the hospital so the sickest men could circumvent the capstan house, as he believed that it was at that place where the *Caryfort*’s men were subjected to ‘a pretty smart attack’ from the yellow fever.⁶⁹ Cole also urged Nourse’s opinion that no seaman be permitted to sleep in the house due to its unhealthy nature and it ought to be used for the reception of stores

⁶⁶ TNA, ADM 1/325, Dr John Cole to Commodore Hood, 6 June 1804.

⁶⁷ TNA, ADM 1/325, Commodore Hood to Admiralty, 15 June 1804.

⁶⁸ Ibid.

⁶⁹ Ibid.

only.⁷⁰ Once Nourse learned all the invalids and healthier men had been moved to the *De Ruyter*, he ordered the ship and the remainder of the squadron at English Harbour to remove themselves from the area to minimize the fever's proliferation. Due to his quick action, Nourse supposed he saved the majority of healthy seamen and marines from the severe rash of fevers. Once most of the unaffected men left the vicinity of English Harbour, the only significant loss of life was owing to an accident: the sinking of a shipyard boat carrying twenty-five men which resulted in the drowning of four of them. By September of 1804, Commodore Hood happily described the reversal of health at Antigua. According to Dr Cole's report to Hood, the outbreak of fevers had subsided and ships' companies were particularly healthy.⁷¹

With the arrival of the sickly season in 1804, the situation at Antigua reversed yet again and Commodore Hood reported that the most heavily-distressed ship was the *Amelia* which had previously been ordered to the Surinam River for two months. While she was there, a considerable number of the ship's company fell ill with yellow fever. By the time the ship returned to Antigua, the *Amelia* had lost her captain, Lord Proby, her first lieutenant, the master, the surgeon, some petty officers and seamen.⁷² The surgeon's journal still exists (a rarity for this time period) which details the fever outbreak on board and the number of men struck down.

According to her surgeon's journal, the *Amelia* originally arrived in the West Indies during the latter part of July 1804 in what he considered to be a very healthy state averaging nine men on the sick list mainly suffering from ulcers and slight colds. The ship was ordered to cruise around the Leeward Islands for two months to avoid hurricanes after which time they were to proceed to Surinam in early October. During the cruise, Dr Reeder, the ship's replacement surgeon (her first surgeon died at Surinam), claimed that there was little alteration to the sick list with the number of men remaining consistently low. In order to replenish their refreshments after arriving at Surinam, her Captain, Lord Proby, ordered a boat to meet the *Berbice* at Paramaribo to procure fresh beef, fruit and vegetables. The *Berbice*, which had a high number of sick men on board, eventually met the *Amelia* to transfer provisions. Despite the precautions taken on board the *Amelia* to limit the transmission of diseases, the first seaman exhibited symptoms of the fever only three days

⁷⁰ TNA, ADM 1/325, Captain Nourse to Commodore Hood, Dr John Cole to Commodore Hood, 6 June 1804.

⁷¹ TNA, ADM 1/325, Dr John Cole to Commodore Hood, 3 August 1804. Dr John Cole to Commodore Hood, 14 August 1804.

⁷² TNA, ADM 1/325, Commodore Hood to Admiralty, 10 November 1804.

later.⁷³ Two days later, Mr Rowen, the ship's original surgeon, the first lieutenant and the master were attacked in a similar fashion. The surgeon entered the sick list on the 12th October and was dead by the 14th while the master lasted one additional day and died on the 15th. Most noteworthy was the death of the commander, Lord Proby, who fell ill on the 14th and succumbed to his fever within two days. Hood asserted that those senior members of the ship's company fell victim to the disease because they showed unrelenting attention to their duty and were to be admired for their efforts.

Nature of the Disease or Hurt	Put on the Sick List	Discharged to Duty	Sent to Hospital	Died on Board
Yellow Fevers	170		144	26
Fluxes	3	3		
Scurvy				
Ulcers				
Wounds & Accidents	1		1	
Rheumatism				
Pulmonic Inflammation	1	1		
Intermittent Fevers	1	1		
Other Complaints	20	20		
TOTAL	196	5	145	26

Table 4.14 – Summary of the Sick List from *Amelia* from 14 October 1804 – 2 February 1805⁷⁴

A further investigation into the surgeon's journal reveals the magnitude of the attack. The journal was compiled from 14 October 1804 to the 2 February 1805 and the extracted figures are shown in Table 4.14. A total of 170 men contracted fevers and, in all, 196 men were put on the sick list in less than four months. *Amelia* was a 5th rate ship with a complement of 274 seamen, which meant the greater part of her crew fell ill at some point during that four-month period. The number of deceased appears in Table 4.14 and only includes the men who died on board. Men sent to hospital at either Barbados or Antigua after the ship returned from Surinam could have died while on the hospital's muster books and were not reflected in the surgeon's journal.⁷⁵

Ships like the *Nautilus*, *Solebay*, *Carysfort* and *Amelia* paint a dire picture of ships in the West Indies and it is easy to forget that the squadrons as a whole were reasonably healthy. Those few ships which suffered the most cannot be allowed to form the basis of a negative view of seamen's health in the entire region. Even during the worst outbreaks of fevers from 1793-1798, the combined sickness figures on board ships in the West Indies for either of the sample years barely reached 6 per cent while the combined mortality rate touched 15

⁷³ The ship's surgeon believed the *Berbice's* men were suffering from a contagious fever which is why precautions were taken. The *Amelia's* men fell ill with yellow fever through contact with fever-carrying mosquitoes.

⁷⁴ TNA, ADM 101/85/1, Surgeon's journal from the *Amelia*, 14 October 1804 to 2 February 1805.

⁷⁵ Ibid.

per cent during the epidemic.⁷⁶ The majority of the sample year morbidity and mortality percentages should be considered relatively low and contradict modern views of naval life in the West Indies. One only needs to recall the combined mortality figures quoted by Crewe which demonstrated an average rate of 12 to 23 per cent loss in that same region of the world.

Surgeons' Journals

Aside from using ships' muster books and correspondence to gather data regarding illness on board ships, surgeons' journals prove to be an interesting, although rare, tool to enhance the raw data. It is simply not enough to identify how many men on board a vessel were on the sick list. To fully comprehend what seamen suffered from, how they were treated and what life on board a West Indies ship was like is enormously valuable. These journals often include a great degree of detail such as the ailments which put seamen on the sick list, medicines and treatments utilised and the length of time men remained under each surgeon's care. Unfortunately these surgeons' log books only survive beginning in 1793 and are not available for every ship. Despite the brief period the surgeons' journals apply to this study, a number of interesting cases emerge that deserve individual attention.

***L'Aimable*: A Case Study⁷⁷**

The surgeon's journal from the *L'Aimable*'s was kept from the 5 September 1797 to the 4 September 1798 during which time the ship served in the West Indies and sailed back to England. As there was no official procedure for completing journals at that time, surgeons reported incidents as they saw fit. *L'Aimable*'s surgeon, Alexander Milne, focused his attention on the more atypical cases in detail. John Stephenson, aged 28, entered the sick list on 9 January 1798 complaining of a pain in the head and back, gripings, tenesmus, chilliness succeeded by heat and burning at the anus. The most dreadful symptom Stephenson suffered from was frequently voiding worms 'of an enormous size.' One of these worms which passed out of his mouth the day he was placed on the sick list, measured 22 inches and, according to the surgeon, looked similar to the common ground worm. Milne treated him with an emetic in order to clear out the contents of his stomach and to regulate his digestive system. After two weeks on the sick list there was little change in Stephenson's prognosis and he continued to void worms. He was finally able to return to duty on the 28 January, although his active service did not last long. By the 2 February,

⁷⁶ The combined sickness figure for 1793 is 5.17 per cent, mortality is 6.56 per cent. The combined sickness figure for 1798 is 4.1 per cent, mortality is 15.97 per cent.

⁷⁷ TNA, ADM 101/81/4, Surgeon's journal from the *L'Aimable*, 5 September 1797 to 4 September 1798.

Stephenson once again entered the sick list citing the same complaints, though on this occasion his recovery time was less than a week. He was admitted to the sick list for a third, fourth and fifth time at the beginning of March, in early April and once more in early May respectively. Stephenson observed that his relapses occurred ‘always at or near the full of the moon.’ The surgeon tested that theory on the next full moon at the end of May, and sure enough the patient returned to the sick list, but his recovery time continued to decrease. Milne anticipated the seaman would return to his care at the end of June, July and August (the next full moons) however Stephenson remained healthy during these months and did not require treatment. The journal draws to a close at that time and it is not known whether or not Stephenson suffered from tapeworms again.

***Arab*: A Case Study**⁷⁸

Thomas Sappen, the *Arab*'s surgeon, compiled a journal from the 27 March 1799 to the 27 March 1800, during which time the ship served entirely in the West Indies. Like the *L'Aimable*, the surgeon treated typical complaints such as fevers, scurvy and ulcers and also like the *L'Aimable*, he treated a number of interesting cases. The master's mate, Mr Ody, required treatment for poisoning brought on by the consumption of the ‘mangereen’ apple which occasioned his severe vomiting and violent convulsions; he was able to return to duty in eight days. Much worse was the poisoning of Jonathan Randall who was stung, according to the surgeon's reckoning, by either a scorpion or a centipede which resulted in near-paralysis and a tumour in the affected area. A third man, James Stevens, was also poisoned during the time the journal was kept, his caused by a tarantula bite on the leg. Stevens suffered from a sedated melancholy, nausea and a sensation of pain in the breast. In both the arachnid cases, the seamen were kept on the sick list for nearly a month before returning to duty.

The most unique incident on board the *Arab* came on the 11 October 1799 when the ship was off the coast of Cape Canaveral, Florida. Three men, Jonathan Legget, James Dumble and Jonathan Gray, were killed by lightning striking the ship, with the main mast acting as the conductor. At the time of the incident, the surgeon reported that ‘every man on deck [was] knocked down, many of whom cried out their legs or arms were broke, from the violence of the shock.’ In the aftermath, there was a sulphurous stench accompanied by three sharp cracks. The surgeon was most astonished that the man positioned in the main top gallant mast during the storm remained completely unaffected by the strike. Jonathan Legget's body was conspicuously wounded with the side of his body burnt and his skin

⁷⁸ TNA, ADM 101/85/4, Surgeon's journal from the *Arab*, 27 March 1799 to 27 March 1800.

peeling off. The two others, according to the surgeon, had only one contusion each just under their ears and around the forehead. In order to ‘satisfy the credulity and superstition’ of the ship’s company, the three men’s bodies were kept on board until evening before being committed to the deep.

As was the case with a number of the journals, the surgeon provided an abstract of illnesses belonging to men on the sick list which gives a comprehensive overview of the ship’s ailments. Table 4.15 is the abstract from the *Arab*’s journal demonstrating that fevers were the most frequent cause of men’s placement on the sick list while wounds and accidents made up a reasonable portion as well.

Nature of the Disease or Hurt	Put on the Sick List	Discharged to Duty	Sent to Hospital	Died on Board
Yellow Fevers	42	16	3	23
Continued Fever	1	1		
Intermittent Fever	1	1		
Fluxes	8	8		
Ulcers	6	5	1	
Wounds & Accidents	27	19	2	6
Pulmonic Inflammation	3		3	
Scurvy	12	8	4	
Ischuria	1	1		
Incontinence of Urine	2	2		
Heamorrhoids	3	3		
Jaundice	2	2		
Poisonous Reptiles	3	3		
Cynanche Tonsillaris	2	2		
Syphilis	2	2		
Inflammation	7	7		
TOTAL	142	86	18	29

Table 4.15 - Seamen on the Sick List on board *Arab* from 27 March 1799 – 27 March 1800

Ambuscade: A Case Study⁷⁹

William Edwards, a seamen aged 28, was put on the *Ambuscade*’s sick list on the 24 September 1801 after sustaining an injury when one of the main deck guns went off by accident while it was being loaded. Another man lost his life in the accident, while Edwards had his right arm badly injured. He was brought down to the cockpit for the surgeon, Thomas Hendry, to assess the damage to his arm. Hendry found the limb completely shattered along nearly its entire length to within three inches of the shoulder joint, while his axilla (armpit), breast and face were noticeably burnt and he had lost part of his pectoral (chest) muscle. Despite Edwards losing a considerable amount of blood from his arm, the surgeon opted to amputate reserving as much of the sound outer skin as possible leaving the patient with a stump measuring two inches from the shoulder joint.

⁷⁹ TNA, ADM 101/84/6, Surgeon’s journal from the *Ambuscade*, 27 August 1801 to 27 May 1802.

That night Edwards enjoyed a restful evening most likely due to the amount of blood lost and suffered slight oozing from the stump and the burnt areas of his face, neck and breast which emitted an offensive smell. Three days after the accident, the patient was reported to be well-rested, without pain and of a cheerful demeanour. When the dressing was removed by the surgeon on the fourth day he noted the stump and his axilla were covered in large maggots, despite this, his burns were healing nicely. By the 2 October the surface of the stump was covered with what Hendry deemed 'healthy granulations' and just over a month later Edwards was discharged back to duty.

***Blenheim*: A Case Study⁸⁰**

The *Blenheim* was initially located at Spithead and then ordered out to the Leeward Islands where Jeremiah Smithers's journal describes a number of dysenteric cases. Beginning on the 26 May 1803, only a few months after the ship arrived on the Leeward Islands station, there was a serious outbreak of fluxes on board which affected a large portion of the ship's company and lasted until the 4 July. During that time, a total of 225 cases were reported by the surgeon (a small number of those were relapse cases). Smithers claimed the 'numbers increas[ed] so fast with all the same complaints, and both assistants ill, [he] could not make pills sufficient to supply' the sick men. The *Blenheim*'s muster book from that time reveals that men did not remain on the sick list for a long period of time and during the month of June, sickness on board averaged 2.22 per cent.⁸¹ A breakdown of the ship's sick list was contained in the surgeon's journal although those figures represented almost a two year period and included diseases suffered at Spithead before sailing for the Leeward Islands. (Table 4.16) While suffering from an intense bout of fluxes, the ship was also troubled by fevers, ulcers, wounds and accidents making it one of the worst-affected ships according to the figures in the surgeon's journal.

⁸⁰ TNA, ADM 101/91/2, Surgeon's journal from the *Blenheim*, 20 May 1802 to 7 March 1804.

⁸¹ TNA, ADM 36/15569 and ADM 36/15570, *Blenheim* muster books, 1803.

Nature of the Disease or Hurt	Put on the Sick List	Discharged to Duty	Sent to the Hospital	Died on board
Continued Fevers	185	146	9	30
Fluxes	284	278	3	3
Scurvy	23	21		3
Ulcers	95	61	14	3
Wounds and Accidents	96	55	6	11
Rheumatism	8	6	1	
Pulmonic Inflammation	15	7	2	
Intermittent Fevers	7	7		
Venereal Complaints	26	24	1	
Other complaints	48	46		1
TOTAL	787	651	36	51

Table 4.16 - Seamen on the Sick List on board *Blenheim* from 20 May 1802 – 7 March 1804⁸²

Arethusa: A Case Study⁸³

Particularly difficult was the job of *Arethusa*'s surgeon. Stationed in the West Indies for the majority of the journal, Thomas Simpson contended with a variety of complaints which included severe dysentery, a concussion and fractures. Initially, the majority of cases were typical ailments until the 15 November 1805 when John Downie, a marine, was put on the sick list suffering from a headache, although Simpson suspected he was faking the illness to avoid punishment for drunkenness. The surgeon described the marine as a 'coltish drunken fellow of such a ghastly wretched appearance in general' that it was difficult, 'to ascertain at anytime whether he is in health or otherwise especially if it is convenient for him to affect indisposition.' Downie apparently possessed a rare talent for imitating various animals including a pack of hounds, a cock crowing and the bellowing of a bull, cow or calf. On account of this unusual ability, 'he [was] often solicited by his shipmates to give a specimen of his talents and a glass of grog of course the reward,' meaning he spent a good deal of time intoxicated.

Upon entering the tropics for the first time, Thomas Toogood, a 22 year old seaman, was exposed to the custom of King Neptune holding court in a crossing-the-line ceremony. While the senior crew members were preparing the performance, Toogood stowed himself away in the hopes of evading the ceremony. Once found, he was 'severely ducked, shaved and afterwards rinsed.' Ducking involved being tied to a wooden harness and dropped from the yardarm into the sea.⁸⁴ Later in the evening, while searching for his hammock and his equilibrium not quite recovered, he fell down into the waist of the ship and hit the left side of his head. He immediately vomited and continued to do so repeatedly which

⁸² This table includes men who were sick at Portsmouth before the ship departed. There were a large number of men sick with fevers during that time and returned to duty before sailing for the Leeward Islands. The numbers do not add up in the Totals row as some men remained on the sick list at the end of the journal.

⁸³ TNA, ADM/101/86/1, Surgeon's journal from the *Arethusa*, 14 May 1805 to 14 June 1806.

⁸⁴ Tim Clayton, *Tars: The Men Who Made Britain Rule the Waves* (London: Hodder & Stoughton, 2007), p. 210.

was brought on by the concussion he sustained. Toogood ultimately returned to duty in little less than a fortnight.

Another accident came only days later when Robert Sampson fell when reefing the main topsail. A block strap gave way, throwing him and several other men off the yard. The men manoeuvred on to the top sustaining very few injuries with the exception of Sampson. He fell all the way down to the quarter deck near the skylight as there was no splinter netting, 'which would have saved him.' The fall resulted in fractures to both thighs and his left arm. His left thigh was injured the worst injured as his femur bone propelled through the skin and ruptured the femoral artery. Incredibly, Sampson initially survived the long fall and was treated by the surgeon with splints and bandages on his limbs. The patient never uttered a word after he fell, but the surgeon claimed he was sensible, apparently alluding to the patient's consciousness. Sampson was put to bed, but, due to the large amount of blood lost by the rupturing of the major artery, he gradually sunk and died later that evening.

While George Wright was working aloft he sustained an unusual puncture wound. He was laying out on the fore topsail yard to reef the sail when a large sewing needle, which he had placed in the breast of his shirt, ran into his sternum. When he attempted to remove it himself, he claimed the needle broke nearly in the middle meaning half of it remained in his chest. He sought out the surgeon at once because he was in a great deal of pain and had 'large drops of sweat [falling] from his face in profusion.' The surgeon immediately inspected the hole in the sternum where the needle entered, but could not see or feel any part of it. Wright maintained that when the surgeon prodded around the hole, he could feel the end of the needle pricking him internally. In order to locate the needle point, Simpson made incisions above and below the orifice, however no part of the object was found. The patient claimed the pricking feeling persisted, but since the surgeon found no foreign objects during the examination, he joined the edges of the incisions and secured the entire area with adhesive straps. A week after the accident, when the wound had supplicated, Wright claimed he still felt the prick in his left breast although an additional week remaining on the sick list proved long enough for the feeling to subside and for Wright to return to duty.

The last remarkable case that Simpson treated on board the *Arethusa* was Jonathan Williams who was placed on the sick list on the 9 January 1806. He suffered a fit (epileptic seizure) but this was not the first time the surgeon witnessed Williams in that condition. The patient's stature was substantial and during this particular attack it took a considerable

number of men to prevent him injuring himself during the convulsions. Simpson previously enquired into William's history of fits which the latter claimed began at the age of twelve in consequence of being frightened by his sister coming suddenly into a dark room dressed in a white sheet. As for the attacks themselves, Williams maintained he had no forewarning, only a rattling noise in his ear that resembled falling water, followed by unconsciousness, his neck, breast and abdomen strongly convulsed, his eyes turned upwards and an agitation of his whole frame became excessive. The surgeon knew that unless he was able to place an object in the mouth (customarily a spoon), William's jaw was likely to lock up and at the height of the paroxysm he was liable to lacerate his tongue. Simpson was keen to document this case in exacting detail as there was a 'genuine sympathy excited in the breasts of all who have ever witnessed his malady.' The surgeon was uncertain how to treat the patient as nothing seemed to suppress the fits. Eventually Williams agreed to a venesection (surgical cutting of a vein) to relieve the symptoms and was subsequently returned to duty.

Atlas: A Case Study⁸⁵

A surgeon's journal also exists from the *Atlas* which served for a time in the West Indies before making her way back to England. During her time off Santo Domingo, she was involved in the naval battle led by Vice Admiral Sir John Thomas Duckworth on the 6 February 1806. The men on board *Atlas* were not badly wounded during the attack; in fact they suffered the least aside from *Agamemnon* who trailed so far behind during the battle that she was hardly engaged. There were two men wounded sufficiently enough to be placed on the sick list, the first of them was a 33 year old seaman named Joshua Barton who received two deep lacerated wounds on his right arm and shoulder. One of the lacerations, perceived to be caused by a broad sharp splinter, divided his bicep muscle, fractured the humerus and destroyed the integuments (protective outer layer) up to the highest point of the deltoid (shoulder) muscle. The other laceration was caused by a canister shot which entered under the axilla (armpit) and narrowly missed injuring the humeral artery. Due to a considerable haemorrhage, the surgeon, Jenkin Jones, declined performing an operation to amputate the arm. Instead, Barton was kept on board the ship for a week until he was stable enough to be transferred to Port Royal hospital.

The other seaman injured during the battle was 34 year old Michael Redman. While he was positioned in one of the tops, a musket ball passed through the superior and external part of the left thigh and grazed the scrotum leaving him with an inflamed right testicle. Once

⁸⁵ TNA, ADM 101/88/5, Surgeon's journal from the *Atlas*, 23 January 1805 to 12 September 1806.

he was shot, Redman came down from the top with very little assistance, demonstrating to the surgeon that the seaman sustained no injury to the bone, nor had there been a large haemorrhage because the bullet's path missed the principal blood vessels. The surgeon used a tourniquet to compress the artery at the groin in order to suppress any further blood loss and eventually sent the patient to Port Royal hospital along with Barton.

***Orpheus*: A Case Study⁸⁶**

For most of the journal, the *Orpheus* was employed in the North Sea but was then ordered to the West Indies in late 1806. Her surgeon, William Millbank, was forced to treat two seamen who were struck by lightning soon after their arrival in the latter. Both men were on deck at the time of the strike and both temporarily lost their vision. One of the seamen, Samuel Gardiner, was unable to open his eyelids and complained of a burning pain. It took him two days to regain the ability to open his eyes and he was returned to duty in five. The other man, Michael Macklaughlin, was not as fortunate. Aside from losing his sight, he was also struck deaf. He regained vision in his right eye, but was unable to see out of his left eye nor did his hearing return. The surgeon had no choice but to invalid Macklaughlin a week and a half later.

Millbank also treated Henry Sherbic after the latter was bitten by a shark on his foot on the 24 October 1806. Sherbic lost a considerable amount of blood during the attack, but was fortunate enough to not lose his foot. The surgeon applied plaster to the severe wound and allowed the patient to rest for the night. He noted Sherbic had minimal pain and a healthy appetite the following day, but experienced terrible discomfort over the succeeding days. The journal ended before the fate of Sherbic was established, but if the surgeon's notes were accurate, he felt positive that the suppuration and discharge from the wound looked healthy and it was probable the patient returned to duty once the laceration was fully healed.

Conclusion

Quantitative investigations into the health of seamen on board ships demonstrate that for the latter part of the eighteenth century and into the nineteenth century, sickness in the West Indies has been largely overestimated in a number of contemporary sources.⁸⁷ By

⁸⁶ TNA, ADM 101/111/3, Surgeon's journal from the *Orpheus*, 29 October 1805 to 29 October 1806.

⁸⁷ The use of 'contemporary sources' here refers to both publications dating from that time period as well as modern-day publications. As was demonstrated at the beginning of the chapter, esteemed historians such as Lloyd and Coulter referred to the West Indies as a deadly region while Sir James Watt called it the 'white man's graveyard'. Earlier publications, most notably Elliot Arthy's work in which he aimed to prove some

using individual ships' muster books, data can be extracted allowing for a comprehensive survey to be carried out. Not only do the figures provide the number of men on the sick list four times per calendar month, they can also be used to track patterns of mortality. Manipulation of that data provides an overall representation of sickness and mortality during both war and peace times. By and large, the average percentage of sick men was relatively low and manageable so long as supplies of medicines and fresh food were procured by vigilant naval officers. These figures also demonstrate that, although the figures were low, there were some ships which were more susceptible to contracting diseases than others. Ships had the potential to suffer quite severely and in some cases individual sickness levels reached 35 per cent while those same ships lost over 50 per cent of their crew within a month or two. Even though a handful of individual ships' figures are high, they are not representative of the overall state of health. Realistically, most men ordered to serve in the West Indies were not likely to succumb to disease or injury and more importantly to the navy they remained well enough to serve the fleet.

Simply gathering raw sickness and mortality data is not adequate enough to understand the role of naval surgeons in the West Indies. Surgeons' journals, as sporadic as their existence is, put these figures into context. They describe, sometimes in great detail, both the ailments which put seamen on the sick list, but also the treatments surgeons employed to return them to active duty. While they document the typical diseases such as fevers, dysenteries and ulcers, they also highlight more unusual cases such as gunshot wounds, shark bites and epileptic fits. These case studies demonstrate application of contemporary medical knowledge and the ingenuity of surgeons. Through their efforts, the majority of seamen, even those who suffered incredible injuries or the amputation of limbs, were not lost to naval service indefinitely.

5,000 British seamen perish in the West Indies in order to promote his anti-slavery message, are also guilty of overestimating the true impact of naval mortality.

Chapter 5

Surgeons, Physicians and Naval Personnel in the West Indies

The improved level of health enjoyed by seamen in the West Indies during the latter half of the eighteenth century was not solely the result of the levelling off of fever epidemics.¹ Some of the most beneficial improvements were the product of hard work and dedication by individuals stationed in the West Indies who ensured all possible strategies were employed in order to secure the highest level of health. As has been discussed previously, the Enlightenment of the eighteenth century significantly altered the attitudes of a number of naval surgeons. Many broke away from the Hippocratic and Galenic teachings, instead preferring to alter their practices to conform to their own observations and experiences. Tröhler is correct in his assertion that these progressive surgeons were ‘motivated by humanity and by love for observations of fact.’² These men went beyond the boundaries of their job and were the principal catalysts for sweeping changes in health practices in that region. Efforts to improve health in the West Indies included persistent letter writing to officials in London to demand supplies, the purchase of fresh provisions from local vendors as well as trialling various medicaments in order to ascertain which were the most effective in combating disease. A great number of their findings were published and circulated through the population-at-large. Some also demanded rigorous cleanliness regimes on board ships; the hygiene advances significantly reduced reports of typhus and other contagious diseases.

Notable men who will be investigated in greater detail in this chapter include Dr James Lind, Admiral Robert Man, Admiral Sir George Rodney, Sir Gilbert Blane and Dr Leonard Gillespie and Dr Thomas Trotter. So important were the contributions of certain men on station, that thirteen years after Blane left naval service he remarked ‘much praise is due to...the officers of the navy’ for their hard work in bringing about crucial changes to the health of seamen.³ It is these men who deserve the majority of credit for altering the victualling and hygiene practices of seamen which resulted in a substantially healthier fleet in the West Indies.

¹ As previously mentioned, the 1770s and 1780s were relatively ‘healthy’ decades as far as yellow fever and malaria was concerned. See Chapter 2 for particulars.

² Ulrich Tröhler, ‘Quantification in British Medicine and Surgery 1750-1830, with Special Reference to its Introduction into Therapeutics’ (PhD dissertation, University of London, 1978), p. 64.

³ Gilbert Blane, *On the Comparative Health of the British Navy, from the year 1779 to the Year 1814, with Proposals for its farther Improvement* (London, 1815) in Christopher Lloyd (ed.), *The Health of Seamen: Selections from the Works of Dr James Lind, Gilbert Blane and Dr Thomas Trotter*, vol 107 (London, 1965), p. 187.

Despite overwhelming efforts to create a healthy environment for seamen, not everyone who served in the West Indies considered it their duty. A small number of dubious characters, primarily driven by financial motivations, compromised the health of sick seamen by cutting corners and failing to procure adequate provisions. Typically these people were employed as agents or contractors who billed the navy for services they did not consistently provide. Particularly during times of war when the Admiralty and merchant vessels were unable to ship a regular supply of medicines and necessities, contractors were forced to purchase local provisions which were generally scarce and expensive. Contractors, who were paid per man per day, were unable to afford the inflated local rates for necessities so they simply failed to supply all they had agreed to. The contractor at Antigua during Admiral Man's command was guilty of operating in such a way. Aside from not securing the goods he was contracted to provide, he also requested to relocate the sick seamen into a non-naval approved facility farther inshore despite the proposed location being deemed potentially injurious to the men. Later in the century, William Smellie Forbes, who was appointed surgeon of Martinique naval hospital, demonstrated his ineptitude which cost a number of invalid seamen their lives. Despite the appalling care of these men, the damage they inflicted was minor compared to the exceptional work carried out by their counterparts.

James Lind

Referred to as the 'father of nautical medicine' by Thomas Trotter, James Lind is the most recognized name in naval medicine. There are a number of references to Lind in books, articles and television documentaries all of which deliver an opinion as to whether or not he was the pivotal figure in the suppression of scurvy in the navy. The tendency seems to be that the older the source, the greater the admiration for Lind, while more contemporary sources strip away a certain amount of credit for his publications on scurvy.⁴ While older sources describe a man who worked diligently to find a cure for scurvy only to find unreasonable bureaucrats dismissing his ideas, the newer sources reduce Lind's work to

⁴For references to Lind finding a cure for scurvy then largely ignored see Michael Duffy, 'The Foundations of British Naval Power' in *The Military Revolution and the State 1500-1800*, vol 1 (Exeter: University of Exeter, 1980): Louis H. Roddis, *A Short History of Nautical Medicine* (New York: Paul B. Hoeber, 1941): Christopher Lloyd (ed.), *The Health of Seamen: Selections from the works of Dr James Lind, Sir Gilbert Blane and Dr Thomas Trotter*, vol 107 (London: Navy Records Society, 1965). For more balanced views of Lind's scurvy work see Mark Harrison, *Medicine in an Age of Commerce and Empire: Britain and its Tropical Colonies, 1660-1830* (Oxford: Oxford University Press, 2010): David Boyd Haycock and Sally Archer (eds.), *Health & Medicine at Sea, 1700-1900* (Woodbridge: The Boydell Press, 2009): Brian Vale, 'The Conquest of Scurvy in the Royal Navy 1793-1800: A Challenge to Current Orthodoxy' in *Mariner's Mirror*, vol 94 (May 2008): Lawrence, Christopher, 'Disciplining Disease: Scurvy, the Navy, and Imperial Expansion 1750-1825', in David Philip Miller and Peter Hanns Reill (eds.), *Visions of Empire: Voyages, Botany, and Representations of Nature* (Cambridge: Cambridge University Press, 1996).

trial-and-error (although mainly error). In between those two extremes lie a number of alternative versions, most giving credit to Lind for performing his trial on board the *Salisbury*, however, due to a lack of confidence in his findings, was unable to convince the Sick and Hurt Board of his results. Julian de Zulueta takes an impartial view claiming Lind ‘had experimentally shown the extraordinary effects of lemons and oranges against scurvy as early as 1753 [but] it took nearly half a century before the regular issue of lemon juice became a general practice in the English Navy.’⁵ Zulueta’s remarks report the facts from Lind’s experiment as well as the period when the Admiralty approved the use of citrus fruit as a preventative for scurvy. At no time does the author suggest Lind’s experiment influenced the Admiralty’s decision to distribute lemon juice in the 1790s.⁶ No matter what the researcher’s opinion on Lind’s understanding of lemon juice as a cure, it may be said that his contributions during his naval career, which spanned a half century, influenced the practices of the physicians and surgeons in His Majesty’s service.

James Lind was born on the 4 October 1716 in Edinburgh and was the second child and first son of a well-to-do family of middle class merchants. He was well-educated from a young age and his interest in medicine may have been sparked by his uncle who was a physician. In 1731, at the age of fifteen, Lind went to study as an apprentice for George Bush Langlands, the latter being a Fellow of the Incorporation of Surgeons (the predecessor to the Royal College of Surgeons in Edinburgh). It is not clear how long Lind remained in his apprenticeship, but at the beginning of the War of Jenkins’ Ear, Lind travelled to London, passed the exam at Surgeons’ Hall and entered naval service as a surgeon’s mate. He was initially posted to the Mediterranean, then to Guinea and finally the West Indies. After eight years of service as a surgeon’s mate, Lind took the exam to become a surgeon and following his successful examination, was promoted to surgeon of the *Salisbury* serving in the Channel Fleet.⁷

It was on board this ship that he carried out his famous scurvy experiment. The experiment consisted of selecting twelve crew members suffering from scurvy and divided them up into six pairs. When selecting the men, Lind opted for those with conditions as similar to one another as possible. According to him, all twelve had ‘general putrid gums,

⁵ Julian de Zulueta, ‘Trafalgar – The Spanish View’ in *Mariner’s Mirror*, vol 66 (1980), p. 298.

⁶ Another balanced view of the evolution of scurvy cures in the eighteenth century is given in Christopher Lawrence, ‘Disciplining Disease: Scurvy, the Navy, and Imperial Expansion 1750-1825’, in David Philip Miller and Peter Hanns Reill (eds.), *Visions of Empire: Voyages, Botany, and Representations of Nature* (Cambridge: Cambridge University Press, 1996), pp. 80-106.

⁷ See Louis H. Roddis, *James Lind, Founder of Nautical Medicine* (London: Heinemann Medical Books, 1951); Harrison, *Medicine in an Age of Commerce and Empire*.

the spots and lassitude, with weakness of their knees.⁸ His idea was to treat each pair with different remedies and gauge the efficacy of each treatment. As a standard, each pair was given a sweetened water-gruel for breakfast, mutton soup or a boiled biscuit with sugar for dinner and barley, rice or sago with currants and raisins for supper. In addition, the first pair received a quart of cider to drink, the second pair received elixir of vitriol, the third were given two spoonfuls of vinegar three times a day, the fourth were made to drink seawater, the fifth dosed with an elixir of garlic, mustard seed, horseradish, balsam of Peru and myrrh and the final pair given oranges and lemons. Lind found the final pair recovered quickest and were able to return to duty in the shortest time. This experiment carried out by Lind on board the *Salisbury* is considered by many to be the ‘first classic therapeutic trial’ in history.⁹

The War of Jenkins’ Ear was over, meaning there was a significant reduction in manning in the navy. Lind left naval service following his trial on board the *Salisbury*. His departure from shipboard service was voluntary and as was the case with other naval surgeons during peacetime, Lind was placed on half pay. He chose to return to Edinburgh to study for his medical degree; and, perhaps unexpectedly, his thesis concentrated on the review of venereal lesions. Once Lind completed his degree, he was elected a Fellow of the Royal College in 1750 and served as its Treasurer from 1756. He also became a member of the Philosophical and Medical Society of Edinburgh (later the Royal Society of Edinburgh). Lind remained on half pay during this time, although the bulk of his income was earned in private practice. Aside from that, he published his research on scurvy in his *Treatise of the Scurvy* which stressed the details of his trial and results from the *Salisbury*.¹⁰ During Lind’s lifetime, the book ran to three editions in English and was translated into French, German and Italian. One of his inspirations for penning the treatise, aside from his own experiences, was the appalling mortality in the navy, particularly the high level suffered on Anson’s voyage round the world in the early 1740s. Lind even dedicated his discourse to Anson.¹¹ In Lind’s book, he recommended using a rob (a boiled concentrate) of lemons or oranges to prevent and treat scurvy. Ventilation, he considered, was key to keeping scurvy at bay by dispelling noxious airs, one of the believed causes of the disease in the eighteenth century. The other believed cause was the seamen’s diet. Surgeons supposed that the large quantities of salted meat served daily to men over extended periods of time wore down

⁸ J.B. Hattendorf, R.J.B. Knight, A.W.H. Pearsall, N.A.M. Rodger and Geoffrey Till (eds.), *British Naval Documents 1204-1960*, vol 131 (Aldershot: Ashgate, 1993), p. 523.

⁹ Roy Porter, *Blood & Guts: A Short History of Medicine* (London: Penguin, 2003), p. 94.

¹⁰ James Lind, *Treatise of the Scurvy* (Edinburgh, 1753), unpaginated.

¹¹ Lord Anson was made First Lord of the Admiralty in June 1751 and Lind’s connection with Anson while the latter was in that position of authority would later pay off for the surgeon.

their constitutions. To alleviate the bad effects from the salted provisions, Lind recommended supplying fresh green vegetables as often as they could be procured.

All of Lind's ideas, although competent suggestions for improving seamen's immune systems, were incapable of suppressing scurvy in the fleet. Despite the nourishing properties of the proposed citrus fruit, once the juice had been boiled down into a rob as Lind suggested, the proportion of vitamin C reduced substantially rendering it almost useless in combating scurvy. His proposal for the supply of green vegetables could have worked, although regular procurement of these items in regions, especially those which suffered from hard winters like Scotland and Newfoundland, could prove difficult and extremely expensive to the service. He also appears to have altered his opinion on the cause of scurvy from the first edition of his *Treatise* to the third. Initially attributing the disease to moisture, differing beliefs emerged in later editions which ascribed it to several causes and found it to occur most predominantly among the 'lazy and indolent'.¹²

There is no record to suggest how Lind's *Treatise* reached either the Admiralty or the Sick and Hurt Board for critical examination, but it is almost certain that Lind forwarded a copy directly to Lord Anson (then First Lord of the Admiralty). At the time, members of the Admiralty and the Sick and Hurt Board were retired naval personnel and administrative men, neither of which would have been able to determine, to any degree of medical certainty, if Lind's *Treatise* proposals would prove successful. As was customary at the time, medical opinions were sought from outside institutions including the Royal College of Physicians and the Society of Apothecaries. Lind's *Treatise* was forwarded to external medical persons for review and comment.¹³ As none of the independent reviewers were able to come to some common opinion, coupled with the potential expenditure to supply naval seamen with fresh provisions or the rob of oranges and lemons, meant that Lind's proposals in his *Treatise* were largely ignored at that time.

Despite the snub to his *Treatise* by naval authority, there were those who acknowledged the gravitas of his work. Lawrence suggests that Lind's writings regarding scurvy were not influential for the treatments they proposed, he maintains when surgeons and physicians cited Lind when discussing the disease, they invoked 'the undisputed authority, the best possible ally.'¹⁴ Lind 'could be cited without any danger of political censure', moreover his 'work was quoted by every eighteenth-century author on scurvy to justify his own

¹² Lawrence, 'Disciplining Disease', p. 84.

¹³ Refer to Chapter 3 for full details of the comments made regarding Lind's proposals.

¹⁴ Lawrence, 'Disciplining Disease', p. 84.

viewpoint.’ The influence that Lind possessed over naval surgeons was great with his works often quoted by Blane, Robertson, Trotter and Gillespie.

Aside from his association with scurvy, Lind’s dedication to treating other disorders affecting seagoing men and his attention to hygiene and cleanliness are often overlooked. In 1757, he turned his focus away from scurvy and published his second book entitled *An Essay on the Most Effectual Means of Preserving the Health of Seamen*. Three editions of this valuable and well-received book were published; the second in 1762 and the third in 1779. Lind tackled the problems for treating a variety of diseases and ailments in this particular publication. Methods for treating scurvy were included, but he mainly concentrated on other shipboard dangers such as drowning, suffocation by noxious vapours from the bilge, lightning strikes and seamen working in wet clothes which were liable to result in ulcers. His progressive views on diseases in this particular book focused on preventative medicine, not curative. However, the main principals Lind conveyed in this book centred round levels of cleanliness which he believed were necessary to suppress the majority of sea diseases on board. He presented theories on the connection between the seamen’s environment and the occurrence of illnesses on board ships. Lind maintained that ‘filthiness [was] a chief source of infection and cleanliness an excellent preservative.’¹⁵ According to Lind, new naval recruits, including impress men, would benefit from passing through a reception ship where they would receive:

...slops, shirts, bedding, and all the necessary articles of seamen’s apparel; with soap, tubs, and proper conveniences for bathing, and with a room upon deck for fumigating of clothes. Every suspected person, whether impress at sea, or on shore should be first put on board of her; their stay, however, should be short, as soon as they are stripped of their rags, well washed and cleaned, they should be supplied with new clothes and bedding, and be sent on board the receiving guardships. Such of their apparel as appears tolerably good ought to be cleaned, or, if necessary, fumigated with brimstone and returned to them; but it will be absolutely necessary to destroy all filthy rags.¹⁶

Lind’s opinion on the method for treating new recruits in this manner spilled over to his later work at Haslar hospital and the admittance of its patients.

After publishing both his *Treatise of the Scurvy* and his *Essay on the Most Effectual Means of Preserving the Health of Seamen* Lind had earned the respect of both the Admiralty and the

¹⁵ Quoted in N.A.M. Rodger, *The Wooden World: An Anatomy of the Georgian Navy* (London: HarperCollins Publishers, 1986), p. 106.

¹⁶ James Lind, *An Essay on the Most Effectual Means of Preserving the Health of Seamen in the Royal Navy and a dissertation on fevers and infection* (London, 1779), unpaginated.

Sick and Hurt Board. On that basis was selected, at the instigation of Lord Anson, the first physician of the newly-built Haslar hospital in Gosport; an esteemed and influential position. The hospital was the largest to date in England, and in fact was the largest in Europe. For Lind to be given such a prestigious post, it is almost certain that his unremitting dedication to the prevention and cure of diseases had made an impression on members of the Admiralty. Lind's appointment to serve as physician commenced on the 25 May 1758 at a pleasing salary of £200 per annum.¹⁷

Lind's theory that bad air was the trigger of most diseases influenced his management of Haslar where he imposed a strict hygiene regimen. He required all incoming patients to remove their dirty clothing and bathe with warm water and soap. Until their own clothes were laundered, the new patients were issued clean hospital dress. Their bedding and clothing were not allowed into the hospital; there was an outhouse for the purpose of storing these items until such time as they could be laundered.¹⁸ The sick seamen were also quarantined in an area of the hospital to be sure they did not infect existing patients. Lind's approach for accepting patients was revolutionary and Haslar was one of the first hospitals, naval or otherwise, to employ such stringent regulations. The procedure was time consuming and rigorous; however the end result was that Lind managed to keep recovery times short and, more importantly, men were able to return to active service.¹⁹ In the third edition of his *Treatise*, he inserted the notes from his routine and meticulous observations among the sick of Haslar. Lind kept records of all his patients; using these records he was able to compile accurate documentation of the scurvy cases he treated as well as a host of other complaints.²⁰

In addition to serving as Haslar's physician, Lind published his last work in 1768 entitled *Essay on Disease Incidental to Europeans in Hot Climates, with the Method of Preventing their fatal Consequences*. This book ran to six editions before its last printing in England in 1806, although it continued to be printed in America. This was the first major British work on diseases of hot climates and, as with his other two publications, this volume contained indispensable advice for Europeans (including seamen) who anticipated travelling to the tropical colonies. Lind evaluated different islands in the West Indies, noting that the healthiest island was Barbados, followed by St Kitts.²¹ Most damning were his opinions of

¹⁷ NMM, ADM/E/24, Admiralty to Sick and Hurt, 25 May 1758.

¹⁸ Roddis, *James Lind*, p. 127.

¹⁹ Blane, *On the Comparative Health of the British Navy* in Lloyd (ed.), pp. 200-201.

²⁰ Tröhler, 'Quantification in British Medicine', p. 165.

²¹ James Lind, *An Essay on Diseases Incidental to Europeans in Hot Climates. With the Method of preventing their fatal consequences. To which is added, an appendix concerning intermittent fevers. To the whole is annexed, a simple and easy way to render salt water fresh, and to prevent a scarcity of provisions in long voyages at sea*, 2nd edn (London, 1771), p. 118. Lind

the airs of Antigua and Jamaica, the former was ‘bad’ while the latter was ‘reckoned still more unhealthy, though much less so than it formerly was’. His narrative included telltale signs that the ‘sickly season’ was fast approaching and how Europeans who had not yet ‘seasoned’ themselves to the environment could effectively preserve their health. He noted ways to combat the bloody flux and the tertian remitting fever (malaria) by administering a quantity of Peruvian Bark which was ‘the only and most effectual remedy.’²² In fact, Lind was one of the first naval surgeons to recommend this successful treatment to the Admiralty and remarked that during the rainy season it worked with particular success. He learned of the treatment while serving off the coast of Guinea where he witnessed the African Company sending quantities of the medicine to their settlements as a preventative. Lind considered bloody fluxes and all fevers to be caused by air vitiated with diseases; he recommended that linens, bedding and other articles belonging to sick men, which propagated infections, be cleaned on a regular basis. If the precautions and cures Lind suggested in his book were heeded by persons travelling to tropical climates, they certainly would have experienced positive effects and reduced exposure to a number of maladies. The publication became one of the most fundamental works in the eighteenth century and stood as a standard work of reference for half a century.²³

Trotter was right to refer to Lind as the ‘father of the nautical medicine,’ not because the latter was involved with stamping out scurvy in the navy, but because he set in motion a medical revolution that vastly improved the health of seamen in a span of fifty years. Sir James Watt described Lind’s trio of publications as a ‘compendium of naval preventative medicine argued from sound principles’ which contained germane observations and suggestions.²⁴ Aside from the points raised in his publications, during his lifetime Lind also advocated the distillation of sea water and even engineered his own purifying machine. In addition he formulated an emergency ration of powdered meal and dehydrated soup and, to improve morale, he recommended seamen be issued with uniforms with a badge embroidered with the name of their ship. Through his dedication and efforts, Lind effectively suppressed typhus, introduced better ventilation, regular bathing and clean clothing. His progressive work eventually led to the establishment of depot ships used for quarantine and receiving ships for new recruits. Most of these efforts carried over to his tenure as physician at Haslar which he held until 1783 when he retired at the age of sixty-

actually suggested the healthiest island in the West Indies was Bermuda, but that was not actually incorporated into either the Jamaica or Leeward Islands stations.

²² NMM, ADM/E/13, James Lind to Admiralty, 28 February 1754.

²³ Harrison, *Medicine in an Age of Commerce*, p. 72.

²⁴ Sir James Watt, ‘Medical aspects and consequences of Cook’s voyages’ in Robin Fisher and Hugh Johnston (eds.), *Captain James Cook and his Times* (London: Croom Helm, 1979), p. 144.

seven. After retirement, Lind remained in Gosport, not too far from the hospital he so vigilantly superintended for twenty-five years, until his death in July 1794 at the age of seventy-seven.

Rear Admiral Robert Man

One of the more overlooked health advocates in the West Indies is Rear Admiral Robert Man. He was ordered to the Leeward Islands in 1769 where he served for three years. Man's contributions to the health of seamen principally involved his efforts in establishing a permanent naval hospital in Antigua. When Man arrived at English Harbour he found the dockyard in a deplorable state with wharves falling down, shipwrecks in the harbour and the depth of the water reduced by the amount of silt that had been allowed to build up.²⁵ Man was, at least, pleased with the state of the rented naval hospital which was located near to the dockyard. Fortunately for the Rear Admiral, the seamen belonging to his squadron were healthy enough upon their arrival at Antigua so not many required medical attention in hospital. Man submitted figures to the Admiralty in August 1769 to testify to the ships' healthy dispositions as well as figures relating to the number of seamen and marines in hospital (Table 5.1).

Ship Name	Whole complement	Complement	Borne	Mustered	Widows Men	Sick on Board	Sick on Shore
Montague	300	243	243	236	6	0	0
Jason	180	140	141	132	4	0	5
Squirrel	120	96	103	98	2	2	2
Scarborough	120	96	104	99	2	15	3
Vulture	90	66	83	76	2	0	3
Total	810	641	674	641	16	17	13

State of Ships English Harbour, Antigua 24 August 1769

Ship Name	Quality	Number	Ill	Very Ill	Recovering
Jason	Seamen	4	1	1	2
	Marines				
Squirrel	Seamen	2	1	1	
	Marines				
Vulture	Seamen	3	2		1
	Marines	1			1
Lynx	Seamen	3	1	1	1
	Marines				
Kinsale Hulk	Seamen	1	1		
	Marines				
Total		14	6	3	5

State and condition of His Majesty's Hospital at Antigua 24 August 1769

Table 5.1 – Rear Admirals Sickness Figures from English Harbour 24 August 1769²⁶

²⁵ TNA, ADM 1/309, Rear Admiral Man to Admiralty, 13 December 1769.

²⁶ TNA, ADM 1/309, Rear Admiral Man to Admiralty, 24 August 1769.

At the time of writing, there were seventeen men sick on board ships at English Harbour and thirteen in hospital out of a total of 674.²⁷ That meant only 4 per cent of the men at that location were unavailable for active service. The hospital had very few men, a third of which were listed as ‘recovering’ and presumably would return to their ships once their health was restored. Man’s squadron did not remain free from illness for much longer; the ‘sickly season’ was fast approaching and fever outbreaks were imminent.

As mentioned in the previous chapter, the ‘sickly season’ in the West Indies ran roughly from August to December. Well aware of the sickly season, the Admiralty preferred to send ships earlier in the year to ensure their arrival much in advance of the inevitable rainy months allowing men to acclimatise to their new environment. It was generally supposed that only after a year or so of being in the tropics, Europeans could become ‘seasoned’ to the environment and had a better chance to remain healthy.²⁸ If the navy positioned their men in the West Indies well in advance of the sickly season, they believed a number of the seamen would become ‘seasoned’ and therefore less susceptible to fevers. Due to contrary winds, Man’s flagship, the *Montagu* was delayed at Plymouth and the fleet did not reach Antigua until August of that year, meaning the freshly-arrived men were immediately exposed to the unhealthiest season in the West Indies. Between the time of their arrival and December 1769, the master, surgeon, fourteen seamen, the lieutenant of marines and eleven marines died on board his flagship. Man’s ship appeared to have endured the worst as the other ships that arrived with him suffered the death of only twelve seamen and two marines. When Man wrote to the Admiralty in December, he claimed there were over 100 men on shore at the hospital, although at one point there were 125 men requiring medical attention.²⁹ Because Man’s ship suffered so severely and since he found the entire naval infrastructure at English Harbour deplorable, he made it his goal to improve all aspects of the base.

So bad was the health on shore at Antigua that Man was obliged to write to the Admiralty in January 1770 to report the death of Andrew Manderstone, the surgeon at Antigua hospital. Man selected William Coltart as his replacement based on the latter’s experience with ‘diseases incident to this country’ and because he was the oldest surgeon on the station.³⁰ Once appointed, Coltart and Man enjoyed a good working relationship, often

²⁷ The inconsistency in the ships’ names in the two tables can be easily explained. Man could only survey men on board ships which were physically located at English Harbour on that date. The *Lynx* was not at English Harbour at that time and therefore only the sick men she left in hospital were taken into account.

²⁸ Harrison, *Medicine in an Age of Commerce and Empire*, p. 64.

²⁹ TNA, ADM 1/309, Rear Admiral Man to Admiralty, 13 December 1769.

³⁰ TNA, ADM 97/86, Rear Admiral Man to Sick and Hurt, 22 January 1770.

exchanging letters on the state of men on shore. Man respected Coltart's abilities and made it his priority to address grievances about the hospital arrangements noted by the surgeon. The surgeon's complaints were generally about the contractor, Mr Grant, who was hired to supply the sick men with a range of necessaries and victuals.³¹ Because of Grant's incompetent handling of the hospital victualling contract, Man was forced to step in on more than one occasion to ensure the seamen's health was not placed in jeopardy. In Man's first grievance to the Sick and Hurt Board about Grant's management, he made his first of many appeals to purchase the hospital building which was currently rented for the purpose of housing the sick men.³² The contractor was determined to relocate the patients from Antigua hospital to an alternative facility some distance away from English Harbour dockyard because it was more cost effective for him. The Rear Admiral was not pleased by this proposal and took up the lease of the existing hospital on behalf of the Crown rather than putting the men's lives in danger by relocating them.³³ Within a two-month period, Man wrote three separate letters to the Sick and Hurt Board, an exceptionally high number considering the first letter was not likely to have reached the Board in that short time. The Board did respond to Man, although they refrained from including any instruction on all matters pertaining to the state of the hospital.³⁴

Undeterred by the lack of concern demonstrated by the Board, Man continued to criticise the hospital's contractor. Having been forced to take up a temporary contract with the proprietor of the Antigua hospital on behalf of the Crown, Man expected to hear from London on how to proceed once that temporary contract expired.³⁵ Despite not receiving instructions from either the Admiralty or the Sick and Hurt Board, Man continued to exhibit an extraordinary amount of concern for the naval hospital. With no instructions at his disposal, Man took all necessary actions to ensure the health of the patients was not compromised in any way. This involved extending the lease with the building's proprietor on more than one occasion for the next two years on behalf of the Crown and securing any necessaries when required.

Man realised the hospital situation could not carry on that way for much longer. He believed that it was necessary to either purchase the rented building outright from the proprietor or the navy would have to erect their own facility. Anticipating the Admiralty's

³¹ The full story of the history and development of the naval hospital at English Harbour is discussed in great detail in Chapter 7.

³² TNA, ADM 97/86, Rear Admiral Man to Sick and Hurt, 23 April 1770.

³³ For the full details of the building of Antigua naval hospital, refer to Chapter 7.

³⁴ TNA, ADM 99/45, Sick and Hurt to Rear Admiral Man, 6 July 1770.

³⁵ TNA, ADM 97/86, Rear Admiral Man to Sick and Hurt, 27 September 1770.

instructions, Man personally investigated ‘what fit places may be had and upon what terms’ in order for the Crown to erect their own hospital in the vicinity of English Harbour.³⁶ He carried out reconnaissance work on a number of locations and, to some extent, advised on the financial implications of purchasing certain tracts of land in and around English Harbour. Once his survey was completed, Man reported his findings to the Sick and Hurt Board and indicated that whatever their decision concerning the possible erection of a hospital, they could be certain of him ‘giving it all the assistance that depends upon me.’³⁷ His willingness to inspect areas and to make himself available to the Board whenever a decision was handed down reveals Man’s enormous commitment to the health of seamen at Antigua.

Had Rear Admiral Man not been ordered to the West Indies in 1769, it is uncertain what events would have transpired with regard to the Antigua naval hospital. The proactive approach he took with both the Admiralty and the Sick and Hurt Board is something to be commended. If the contractor was permitted to remove the hospital patients to an unsafe location a reasonable distance from English Harbour dockyard, it is unknown how those men would have fared and if the mortality rates would have increased. Man did, of course, have the benefit of being commander-in-chief during a period of peace, meaning his routine duties were not as demanding as those placed on admirals during war time. Regardless of the reduced burdens, Man took his responsibility for ensuring the health of seamen in the Leeward Islands very seriously and undoubtedly saved many lives through his unremitting dedication.

Admiral Sir George Rodney & Sir Gilbert Blane

As with James Lind, much has been written about the careers of Admiral Sir George Rodney and Sir Gilbert Blane. Although their lives were only briefly intertwined in naval service, their partnership in the West Indies resulted in sweeping changes to health and hygiene practices. During their tropical service, the English were embroiled in a major war with both the rebellious American colonies and their French ally. This meant the number of men stationed in the West Indies was extremely high with the potential for sickness to overwhelm the squadron and render it virtually useless. The individual backgrounds of the two men will be discussed separately including how they came to naval service, followed by a summary of their time working together in the West Indies and finally their subsequent careers.

³⁶ TNA, ADM 97/86, Rear Admiral Man to Sick and Hurt, 20 December 1770.

³⁷ Ibid.

George Rodney entered naval service in July 1732 and was quickly promoted to the rank of midshipman. In 1738, Rodney sailed for Newfoundland on fisheries protection duties which was the first time he was exposed to such a lengthy voyage and the effects of scurvy on the ship's company. After he returned to England, he was eventually promoted to captain and, in 1749, he was once again ordered to Newfoundland on fishery protection duty. Since he was aware of the dire effects of the lengthy voyage as well as the inhospitable climate of that location during the winter months from his previous service, Rodney built a hospital and created a market garden to supply fresh vegetables to his men.³⁸ His time spent in Newfoundland provides the first impression of how concerned Rodney was with the health of the seamen. Following his service in Newfoundland, he was ordered to various regions during the Seven Years' War and was promoted to Rear Admiral in 1759. He was first sent out to the West Indies two years later when he was appointed Commander-in-Chief of the Leeward Islands station with orders to attack the lucrative French-held island of Martinique. Although Rodney had already witnessed the ravages of some diseases such as scurvy and typhus, his service in the West Indies exposed him to a number of new illnesses including yellow fever and malaria. The negative effects that these tropical illnesses had on the West Indies squadrons remained in Rodney's mind and influenced his instructions on future stays in that region.

Once the war was over and Rodney was back in England, he attempted to run in the 1768 general election and, in doing so, exhausted a great deal of his earnings. That, coupled with his growing gambling debts, placed Rodney in serious financial difficulty. When the opportunity arose for him to remove himself from England and escape his debts, he gladly accepted the position of Commander-in-Chief of Jamaica in 1771 where he remained until 1774. Yet again he was exposed to the devastation of tropical diseases. The debt problems Rodney left in England before sailing for Jamaica were waiting for him upon his return. Faced with these extensive financial problems, Rodney applied for a leave of absence from the navy and took his family to France where he remained until 1778. When the effects of the American War of Independence reached France, he returned to England after a deal was struck between Rodney and the Navy Board to clear his debts. He took up an appointment as Commander-in-Chief of the Leeward Islands station in 1779 and it was at that point where Rodney was joined by Gilbert Blane.

³⁸ Kenneth Breen, 'George Brydges Rodney' in *Oxford Dictionary of National Biography*, vol 47 (Oxford: Oxford University Press, 2004), p. 496.

Sir Gilbert Blane was born on the 29 August 1749 at Blanefield, Ayrshire. His birth into a wealthy merchant family allowed Blane to attend Kirkoswald and Maybole schools, both prestigious institutions, before he enrolled at the University of Edinburgh, known for producing a number of esteemed medical men. It was not Blane's intention to enter the medical profession when he enrolled in university; his plan was to study for a career in the church. It is unclear why, after five years of art and religious studies, Blane switched his course of study to medicine. He received his MD from the University of Glasgow in 1778, where he was fortunate enough to study under William Cullen, who subsequently introduced him to William Hunter in London.³⁹ Blane's contact with Hunter eventually led to the recommendation of the young doctor to Admiral George Brydges Rodney. On Hunter's suggestion, Rodney agreed to employ Blane as his personal physician and took him out to the West Indies in 1779 on board the *Sandwich* as the former suffered severely from gout and was something of a hypochondriac.⁴⁰ The physician proved to be a valuable member of the ship's company and often went above and beyond his normal duties when required. Rodney quickly recognised Blane's efforts both as a member of the ship's company and also his ability as a man of medicine. Unlike most medical men serving in the navy, Blane was not content to serve below deck during battle; he made himself available on deck carrying with him a supply of tourniquets in order to quickly suppress bleeding and attended the wounded men in the place they fell as to reduce the amount of stress ordinarily experienced by moving them to the orlop deck. To reward him for these positive attributes, Rodney appointed Blane Physician of the Fleet in April 1780.⁴¹ He accepted Rodney's appointment but insisted he be placed on a similar rank as army physicians and to be allowed a suitable share of prize money.

Serving in this capacity, Blane, with Rodney's full support, was able to advance the health of the fleet in a short period of time by introducing a number of medical and hygiene reforms. According to J.D. Spinney, the partnership was so successful that, 'never before had any British fleet a better health record - thanks to Rodney and Doctor Blane.'⁴² The close relationship with Rodney afforded the physician a great deal of leverage when it came

³⁹ Both men hailed from Scotland where Cullen eventually set up a private practice which gained a good reputation. William Hunter was one of Cullen's students who gained notoriety in his own right in his study of obstetrics. Hunter relocated to London and became physician to Queen Charlotte, elected to the Royal Society and was a professor of anatomy at the Royal Academy.

⁴⁰ Christopher Lloyd and Jack L.S. Coulter, *Medicine and the Navy 1200-1900*, vol 3 (Edinburgh: E&S Livingstone, 1961), p. 130.

⁴¹ TNA, ADM 1/314, Admiral Rodney to Admiralty, 13 February 1781.

⁴² J.D. Spinney, 'Rodney and the Saints: A Reassessment' in *Mariner's Mirror*, vol 68 (1982), p. 382.

time to compel captains and surgeons of the fleet to follow his new orders. As commander-in-chief of a vital fleet during a crucial war, Rodney knew the benefits of keeping his men healthy and prepared for battle and he was all too aware of how tropical diseases had the potential to devastate a squadron.

Upon his appointment as physician, Blane was allowed autonomy to treat the men as he saw fit and was ordered to report any necessary actions directly to Rodney, the Sick and Hurt Board and the Admiralty.⁴³ So determined was Blane to monitor the well-being of every ship, that he demanded each ship's surgeon submit a report on the state of health on a recurring basis. His request was groundbreaking in that this was one of the first instances that regular reports were generated and forwarded to a medical man on station who was positioned solely to oversee health concerns. Blane believed that by collecting the data he would 'be able to form some judgement of the comparative state of sickness at different times, and of the success of the means to be employed in preserving health.'⁴⁴ Once the reports were compiled, Blane determined they would provide the Admiralty with sufficient data to revise the instructions for naval surgeons 'that [were] best adapted to the situation of the fleet.'⁴⁵ Here again, Blane is remarkably progressive in terms of the navy's standard medical practice. His advice to compile data and then use that information to alter guidelines issued to naval surgeons demonstrated an uncommon attempt at preventative care.

Reforms in the medicine were not solely instigated by Blane. Rodney was especially distressed by the lack of cleanliness and hygiene throughout the navy. He believed that captains would benefit from implementing stricter levels of discipline and keeping their ships as clean as possible. He observed that if every:

care is taken to keep the ship sweet and clean, particularly in the hold and orlop, where she is properly ventilated by wind sails, and keeping the ports open, where the seamen are kept clean and neat in their persons, their bedding clean and properly aired, their work, when possible, restricted within proper hours, the crew is [more] healthy.⁴⁶

Knowing how important it was to be well-equipped with certain necessities in the West Indies, Rodney wrote to the Admiralty requesting a quantity of portable soup and the essence of spruce, both crucial to the navy's system of treating sick men, since both items

⁴³ TNA, PRO/30/20/12, Gilbert Blane to Sick and Hurt, 15 July 1780.

⁴⁴ TNA, PRO/30/20/12, Gilbert Blane to Sick and Hurt, 15 July 1780.

⁴⁵ Ibid.

⁴⁶ TNA, PRO 30/20/18, Rodney's Observations on the Caribbean station.

had been omitted from his cargo when he sailed from Portsmouth in 1780.⁴⁷ The other item Rodney demanded was fresh provisions for sick men. He insisted that if he was unable to obtain orders from London to authorise the purchase of fresh provisions, he would procure them on his own and submit the bills to the Admiralty for reimbursement. In May 1782, he was forced to authorise the purchase of fresh beef and other refreshments for the use of the sick because the navy's administration failed to agree to his demands. Rodney directed the *Formidable's* purser to be in charge of procuring and overseeing the distribution because the victualling contractor in the Leeward Islands refused to do it because it went against general orders.⁴⁸ Throughout his time on the station, Rodney continued to write to the Admiralty requesting medicines and necessaries to be sent from England rather than having to procure those items locally at a higher price. He claimed, 'some of the most fatal diseases of that climate [arose] from the want of fruit and fresh diet' which could be 'prevented and cured by such an allowance of Peruvian Bark as is provided for HM's ships serving on the Coast of Africa.'⁴⁹

Blane took an unorthodox approach when he too wrote directly to the Sick and Hurt Board because he considered the situation of the Leeward Island's squadron warranted it. In his letter of July 1780, he indicated to the Board that he was accumulating monthly sickness returns from each ship of the squadron and intended to use these returns to 'form some judgement of the comparative state of sickness at different times, and of the success of the means to be employed in preserving health.'⁵⁰ He believed that the figures should be compiled by the Sick and Hurt Board on a regular basis and used to better calculate the distribution of medicines and necessaries in advance. Blane described the plight of surgeons and their inability to afford the inflated costs of medicines when the Board failed to send regular supplies.⁵¹ Even those surgeons who arranged for a repeated supply of medicines from home by a private commission rather than procuring them locally were gambling on account of the distance, risks and credit necessary to do so. The most useful medication, the Peruvian Bark, never retailed for less than 30 shillings per pound in the West Indies, a great sum of money to surgeons whose wages were six shillings and eight pence per man per cure.⁵²

⁴⁷ TNA, ADM 1/311, Admiral Rodney to Admiralty, 15 February 1780.

⁴⁸ TNA, PRO 30/20/5, Admiral Rodney Official Letter Book, 21 May 1782.

⁴⁹ NMM, ADM/E/43, Admiralty to Sick and Hurt, 10 December 1781.

⁵⁰ TNA, PRO 30/20/12, Gilbert Blane to Sick and Hurt, 15 July 1780.

⁵¹ The proposed supply of medicines would still be paid for by the surgeons, however, the benefit was that they would pay London prices rather than inflated West Indies prices.

⁵² P.K. Crimmin, 'The Sick and Hurt Board and the Health of Seamen c1700-1806' in *Journal for Maritime Research*, vol 1(December 1999), p. 51.

Six months after Blane arrived in the West Indies he printed, at his own expense, *A Short Account of the Most Effectual Means of Preserving the Health of Seamen*. He drew largely on his experiences in that region and specifically addressed issues of hygiene and victualling. In it, he stressed that the prevention of disease was just as important as curing them. Blane, echoing Rodney's opinion, endeavoured to make captains and officers more culpable for the health of their men by suggesting that if discipline on each ship was enforced to a greater degree, it would 'extirpate diseases from the navy.'⁵³ The three most fatal diseases Blane witnessed firsthand in the West Indies, fevers, fluxes and scurvy, would be better managed if authority figures were prepared to implement these stronger regulations.

Blane's book was well-received and distributed to all captains and surgeons in the Leeward Island's squadron. He also continued to prove to Rodney he was competent in his role, so much so that Rodney recommended he be made a Commissioner of the Sick and Hurt Board who would be permanently stationed in the Leeward Islands. Rodney observed that the Navy Board had a commissioner posted at Antigua dockyard, but 'there [was] another department equally important in that unhealthy climate namely that of the Sick and Wounded' and all his 'time and attention being employed in the other arrangements also of so great a fleet, as well as the general objects of war, I had no leisure to manage and settle the particulars referred to me.'⁵⁴ Rodney maintained the attention he provided to this branch of service during the war was not adequate enough to sustain his squadron. His recommendation for Blane to take on the responsibility was based on the latter's 'past conduct in the medical part, and his knowledge and experience of the station' which made him 'fit...above any other person for conducting the whole branch.' While the Sick and Hurt Board felt Rodney's suggestion held merit, the Admiralty disagreed and the position was not established.⁵⁵

When Blane sailed home with Rodney for the recovery of the latter's health in August 1781, he reported the state of the Leeward Island's squadron to the Admiralty as well as sending a formal proposal recommending changes to current health practices.⁵⁶ To convince the Admiralty that changes were requisite, he presented mortality figures from the West Indies fleet from July 1780 to July 1781. According to Blane's data, a total of 715

⁵³ Gilbert Blane, *A Short Account of the Most Effectual Means of Preserving the Health of Seamen, Particularly in the Royal Navy* (1780), pp. 4-5.

⁵⁴ TNA, ADM 1/314, Admiral Rodney to Admiralty, 24 November 1781.

⁵⁵ TNA, ADM 98/14, Sick and Hurt Out-Letters, 10 December 1781.

⁵⁶ Gilbert Blane, *Observations on the Diseases of Seamen*, 2nd edn (London, 1789) in Christopher Lloyd (ed.), *The Health of Seamen: Selections from the Works of Dr James Line, Gilbert Blane and Dr Thomas Trotter*, vol 107 (London: Navy Records Society, 1965), pp. 167-171. TNA, ADM 98/14, Sick and Hurt Out Letters, 28 December 1781.

seamen died on board ships, of which only fifty-nine died during battle or from wounds suffered in battle while a further 862 died in naval hospitals on shore during the same period of time. Of the 12,109 men needed to man twenty ships of the line, 1,577 of them perished largely due to disease. A further 350 were sent back to England as invalids during this period and most of them were never again fit for service.⁵⁷ Blane's first formal proposal for changes to the system of medical care was to establish a clear-cut set of rules to create uniformity in cleanliness among seamen and to make ships sanitary and dry.⁵⁸ To this point the Sick and Hurt Board, to whom the proposals had been referred by the Admiralty, felt the navy was currently performing that task much better than other countries and therefore no further regulations should be added. Blane's second request was for the navy to supply fruit and vegetables for the prevention and cure of scurvy, which the Board was appeared eager to enact. Points three and four referred to the distribution of medicines and necessaries to surgeons; specifically he appealed for the supply of free medicines to be increased. Blane insisted that additional quantities of Peruvian Bark in particular would enhance the care provided by surgeons in an area where 'medicines are exorbitantly dear, and often unsound.'⁵⁹ The Board responded that medicines had already been ordered to the West Indies and were to be sold to the surgeons at the same price as they are sold in England, and they would not authorise the distribution of more free medicines.⁶⁰

Addressing the level of sickness and mortality on board ships-of-the-line, according to Rodney, was not the only solution for keeping them properly manned. Desertion plagued the West Indies squadrons and at times proved more destructive than illness. Sending parties ashore on wooding, watering and provisioning duties was always a risk. Most commanders-in-chief expressed concern to the Admiralty at one point or another about the level of desertion experienced abroad. To combat the problem, Rodney and Blane took additional precautions to ensure the men sent on shore were returned to their ships. At St Lucia, in particular, Rodney relocated the temporary sick quarters from the town of Gros Islet to permanent facilities on nearby Pigeon Island.⁶¹ Moving the men to the isolated location meant the local population was not exposed to diseases, the seamen were not tempted by the rum houses and convalescing seamen were not able to desert so easily.

⁵⁷ Blane, *Observations on the Diseases of Seamen*, in Lloyd (ed.), pp.167-168.

⁵⁸ TNA, ADM 98/14, Sick and Hurt Out Letters, 28 December 1781.

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ Pigeon Island is no longer disconnected from the mainland as it was in Rodney's day. A causeway was erected in 1972 to join it to the northwest part of the island near Gros Islet. Rodney's connection with this part of St Lucia is extremely evident today. The bay between Gros Islet and Pigeon Island is named Rodney Bay, while the fort at the apex on the smaller of the two peaks on Pigeon Island is known as Fort Rodney.

Rodney and Blane's hard work and dedication paid off. In 1782, when the fleet consisted of forty ships-of-the-line with crews numbering nearly 24,000, Blane reported there were only 350 deaths from disease in six months and no more than 1,000 men were sent to hospital.⁶² If these figures seem high, one only has to compare them to the figures reported by Blane a year earlier when nearly 800 died in a fleet half the size!

Some of the biggest tests that Rodney and Blane faced were the engagements with the French fleet, most famously the Battle of the Saintes. Blane's measures for reducing sickness and mortality had been so successful that of the thirty-six ships-of-the-line present at that battle on the 12 April 1782, 'every ship, except two, might be said to be healthy.'⁶³ In his book, N.A.M. Rodger considered the men in attendance at the Battle of the Saintes to 'have been the healthiest body of British subjects in the world.'⁶⁴ That was an incredible feat given the medical knowledge of the day. The British suffered significantly less than the French, with Blane reporting the total number of men killed at 234 and the number of wounded at 789.⁶⁵ Although their dead and wounded numbers were never published, Blane estimated the *Ville de Paris*, de Grasse's flagship, lost 300 men. Considering there were 5,400 French troops on board in addition to the seamen of the fleet distributed among the vessels, the casualties would have been proportionally more numerous.⁶⁶ Blane commented on the state of French prizes taken that day, observing that their decks were never washed, there was no proper ventilation and no scuppers were open on the lower decks to allow the water and filth to leave the ship. Perhaps the most astonishing French practice was their habit of sending blood, mangled limbs and even entire dead bodies down to the orlop deck which lay there and putrefied for extended periods of time. Blane ascertained the French had a 'superstitious aversion to the throwing of bodies overboard immediately after they are killed, the friends of the deceased wishing to preserve their remains, in order to perform a religious ceremony over them when the hurry and danger of the day [was]...over.'⁶⁷

During their time together in the West Indies, Rodney's faith in Blane's abilities, in addition to the physician's own medical prowess, made this duo the most successful in the West

⁶² R.S. Allison, *Sea Diseases: The Story of a Great Natural Experiment in Preventive Medicine in the Royal Navy* (London: John Bale Medical Publications Limited, 1943), p. 174.

⁶³ Blane, *Observations on the Diseases of Seamen*, in Lloyd (ed.), p. 145.

⁶⁴ Rodger, *The Command of the Ocean*, p. 399.

⁶⁵ TNA, ADM 1/314, Admiral Rodney to Admiralty, 14 April 1782. Figures in other sources differ slightly. In A.T. Mahan, *The Major Operations of the Navies in the War of American Independence* (Stroud: Nonsuch, 2006), he puts the death figure at 243 and the wounded at 816. For figures referring to French losses see Blane, *Observations on the Diseases of Seamen* in Lloyd (ed.), pp. 149-150.

⁶⁶ Mahan, *The Major Operations of the Navies*, p. 154.

⁶⁷ Blane, *Observations on the Diseases of Seamen*, in Lloyd (ed.), p. 149.

Indies in the eighteenth century. The changes implemented in the early part of their service together laid the groundwork for the squadron's subsequent naval victories. Rodney's insistence on strict discipline amongst both the officers and men, the focus on the reduction of desertion and the development of ship repair facilities scattered at various harbours in the Leeward Islands instead of relying solely on English Harbour resulted in the considerable advantage over the French fleet.

When Rodney and Blane returned home separately in 1783, the two remained friends.⁶⁸ The former was created Baron Rodney of Rodney Stoke, Somerset and the House of Commons voted him a pension of £2,000 per annum. Rodney retired in the country spending time with his family until his death at his home in Hanover Square, London in 1792. Blane returned to England, retired from naval service and was granted a pension of ten shillings a day, although this was certainly not the end of his contributions to naval medicine.⁶⁹ His continuing friendship with Rodney proved advantageous and the former acquired an appointment at St Thomas's hospital, London, largely through the influence of his former admiral.⁷⁰ To further demonstrate the bond between the two men, Blane named one of his sons after Rodney: George Rodney Blane.⁷¹ Aside from his hospital employment, Blane established a substantial private practice for London's upper classes. He also befriended the Duke of Clarence while serving in the navy, and on the latter's recommendation, Blane was appointed Physician Extraordinary to the Prince of Wales in 1785. In that same year, he wrote his influential work on naval hygiene entitled *Observations on the Diseases of Seamen*.⁷² The work largely recapped his experiences in the West Indies with Rodney and provided a unique insight into the incidences of tropical disease. During the three years of his service, there were no less than twenty ships-of-the-line on the station at any point in time, and there were occasions when that number exceeded forty. Figures submitted to Blane by surgeons from these ships during his term as Physician of the Fleet were compiled and analysed in a precise way in order to:

⁶⁸ Admiral Rodney was actually recalled back to England and replaced on the station by Hugh Pigot due to political changes at home a fortnight prior to the Battle of the Saintes. The administration was red faced about the recall once they learned of Rodney's victory and the subsequent public opinion of the battle. Gilbert Blane returned home separately a few months later.

⁶⁹ TNA, PC 1/61/11, Report from the Admiralty to the Privy Council for allowing a pension to Dr Gilbert Blane, 5 May 1784.

⁷⁰ NMM, BLA/97, Newspaper Cutting entitled 'Medical Miniatures – Subject XVI Sir Gilbert Blane, Bart.' (c1834).

⁷¹ NMM, BLA/99, 24 August 1800. George Rodney Blane to Sir Gilbert Blane.

⁷² Blane, *Observations on the Diseases of Seamen*, in Lloyd (ed.). In this work, Blane was especially complimentary of the Admiralty and Sick and Hurt Board for adhering to suggestions he put forward in his previous publications, thereby enhancing the level of wellness on board the ships of the fleets.

acquaint the commander in chief, from time to time, of the state of sickness, or the predominance of particular diseases, in order to recommend such articles of diet, or other means, as might tend to cure them, or to check their progress.⁷³

These figures were included in Blane's book, giving the Sick and Hurt Board their first comprehensive study of disease in that region.

Blane spent a total of twelve years serving at St Thomas's hospital until 1795 when he was once again given a chance to directly influence naval medicine. He was offered the opportunity to serve as a Commissioner of the Sick and Hurt Board. As Commissioner, Blane's main goal was to continue the advancement of health in the navy and in Eunice Turner's estimation, Blane 'was equally outstanding as a commissioner' as he was in his West Indies service.⁷⁴ Using his position as a commissioner, Blane forged ahead with improvements in the seamen's diet and hygiene as well as tackling the Board's poor administration and excessive expenditures. His tenure with the Sick and Hurt Board lasted seven years, during which time he helped to usher in the general issue of lemon juice to the fleet to combat scurvy and the free issue of additional medicines to surgeons (though not the surgical instruments).

His departure from the Board was by no means his last interaction with the Royal Navy. Blane consulted on a number of government health campaigns, the Turkey Campaign and drew up much of the legislation which became the Quarantine Act of 1799. He was knighted in 1812 partly for his achievements in coping with the aftermath of the disastrous Walcheren Expedition.⁷⁵ He later became physician to George IV while he also had the honour to be consulted by the Emperor of Russia, the King of Prussia and the US President John Adams on medical queries. Throughout these various services, Blane continued to publish works on naval and general health including *Elements of Medical Logick* in 1819 and a dissertation entitled *On the Comparative Health of the Navy in 1779, 1814* first issued in 1815. The latter publication demonstrated Blane's continuing interest in the navy and its improving degree of health. Also in the latter work, he cited the mortality figures for the navy from 1811 to 1813 and using these figures, he calculated:

that if the navy had been equally sickly in 1813 as it was in 1779, and there had been no improvements in the treatment of the sick, the whole number of deaths from disease in the former year would have exceeded

⁷³ Ibid.

⁷⁴ Eunice H. Turner, 'Naval Medical Service 1793-1815' in *Mariner's Mirror*, vol 46 (1960), pp. 121-122.

⁷⁵ NMM, BLA/115 Printers Proof of Blane Biography, 26 December 1812. For a more detailed account of the Walcheren Expedition, please see Chapter 2 under 'Malaria'.

the actual number by 6,674. Under such an annual waste of life, the national stock of mariners must have been exhausted in the course of the prolonged warfare from which this country has just emerged.⁷⁶

To further confirm his dedication to the navy, in 1829 Blane founded a prize medal (the Blane naval medical medal) for the best kept journal by surgeons of the Royal Navy.⁷⁷ The notice given to naval medical officers signified the fund was set up in perpetuity for ‘the purpose of providing the means of conferring a gold medal, once in every two years, on such two medical officers...as shall produce the most approved journals of their practice’ and exhibited a dedication for improving health and hygiene in the service.⁷⁸

During Blane’s lifetime, a number of significant and advantageous changes were implemented in the navy, many derived from his own ideas and writings. Levels of personal cleanliness had been greatly improved, particularly with the introduction of slop ships in 1781. On the back of enhanced seamen’s hygiene, advancements in cleanliness, dryness and ventilation of ships were enacted through stricter shipboard discipline. Surgeons were given a gratis supply of their principal medicines in 1796 (while Blane was a commissioner), although they were obliged to purchase the remainder until 1804 when all medicines were provided free of charge.⁷⁹ Even with all these sweeping changes, Blane was confident it was the issuance of lemon juice from 1795 that proved the greatest catalyst for reducing sickness. Writing in 1830, Blane examined the improvements in the health of seamen during the late eighteenth century. He said:

It now remains to be mentioned, through what means these mighty results have been brought about. Are we to thank for it a guardian angel, presiding and watching over the dearest and most valuable interests of our country? Or is it more rationally imputable to some of those profound and exquisite discoveries in science, mathematical, chemical, mechanical or pharmaceutical, with which the present age abounds above all other? No such thing. The scurvy has been prevented, subdued and totally rooted out, by the general use of lemon juice, supplied for the first time at the public expense in the year 1795, and which operated so speedily that in less than two years afterwards, it became extinct, and has remained so.⁸⁰

Blane died in his home on Sackville Street, Piccadilly on the 27 June 1834 leaving an enduring legacy, one consisting of exceptional medical prowess, insistent and assertive

⁷⁶ Blane, *On the Comparative Health of the British Navy*, in Lloyd (ed.), p. 176.

⁷⁷ TNA, ADM 105/106, Awards of the Gilbert Blane Medal for medical theses by RN surgeons.

⁷⁸ Ibid.

⁷⁹ Despite the provision of all medicines, surgeons were required to supply their own instruments until 1899.

⁸⁰ Gilbert Blane, *A Brief Statement of the Progressive Improvement of the Health of the Royal Navy at the end of the Eighteenth Century and the Beginning of the Nineteenth Century* (London, 1830), pp. 12-13.

conduct during his naval career and an unrelenting desire to advance the health of England's population at large.

Leonard Gillespie

The name Dr Leonard Gillespie is most often connected with Admiral Horatio Nelson. Gillespie was appointed Physician of the Fleet under Nelson's command in the Mediterranean joining him on board *Victory* in January 1805. Before he joined the Admiral in the Mediterranean, Gillespie already had a long and distinguished career as a naval surgeon. He spent a number of years serving in the West Indies during the American War of Independence and then again during the French Revolutionary War. His second spell in the Leeward Islands lasted for eight years and it was at this point that Gillespie familiarised himself with a number of tropical diseases and remedies and it this latter service that is the focus of this section.

Leonard Gillespie was born in Armagh, Ireland on the 20 May 1758, the son of Leonard Gillespie and Elizabeth Blakely. Both parents died when Gillespie was a child and he was subsequently raised by his two elder sisters until he entered an apprenticeship to a local doctor at the age of fourteen. At the age of nineteen, Gillespie went to Dublin to study under various surgeons and in June 1777, he was successfully examined by the Company of Surgeons in London. Upon passing his examination, Gillespie entered naval service and became the second assistant surgeon on board the *Royal Oak*. The ship was stationed off the coast of West Africa with occasional voyages to the West Indies under orders to guard merchant ships. This was Gillespie's first exposure to tropical diseases endemic to both regions. During one of his voyages from West Africa, Gillespie performed an experiment with Peruvian Bark claiming to follow the writings of James Lind.⁸¹ His experiment called for all seamen coming on watch to strip to the waist when it rained so they had dry clothes to put on when they came off watch. They were also made to drink a dose of bark in wine at the beginning of their watch to ward off the bad effects from putrid air, rainy conditions and physical exertion. Coming off watch, the men took a bath in seawater before putting on dry clothes and taking another dose of bark and wine. Gillespie also insisted on total cleanliness and fresh air, therefore the ship was always well-ventilated and the decks frequently washed with vinegar. A sick berth was also fashioned under the forecastle where the sick were kept separated from those in health.⁸² Gillespie's hard work and

⁸¹ Lloyd and Coulter, *Medicine and the Navy*, pp. 47-48.

⁸² Noel Mostert, *The Line Upon a Wind: The Greatest War Fought at Sea Under Sail 1793-1815* (London: Vintage, 2007), pp. 90-91.

meticulousness paid off and only one man out of 125 died on the normally dangerous passage.⁸³ He was promoted to surgeon of the *Royal Oak* in 1781 and spent the majority of his time in the waters around St Lucia. When the Treaty of Versailles was signed in 1783, Gillespie was discharged from the navy with a considerable sum of prize money to his name. Peacetime and his own financial welfare afforded him the opportunity to study medicine further in Edinburgh, St Andrews and Paris before returning to Armagh. It was during this hiatus from the navy that he published his well-received work in the London Medical Journal on the subject of the treatment of ulcers. Rather than settle in Armagh and establish a private practice, Gillespie chose to return to London in 1786 and by 1787 he went to sea on board the *Racehorse* where he remained until 1791, after which time he opted to take up residence in Paris. His time in France was short-lived and when war was declared between England and France in 1793, he rejoined the navy assigned to the *Majestic*. On board that ship, Gillespie was present at Lord Howe's victory on the Glorious First of June in 1794, after which the ship made its way to the Leeward Islands.

The British took the island of Martinique from the French in 1794 and it was here that the *Majestic* was ordered to cruise around until receiving further instructions. Not long after the ship arrived, the commander-in-chief, Admiral Sir John Laforey, found it necessary to establish a naval hospital at Fort Royal of which Gillespie was appointed surgeon. This appointment lasted for seven years and involved both the care of seamen belonging to the squadron and managing French prisoners-of-war. His experience with tropical diseases during this period led him to publish two books on the subject: *Advice to Commanders of HM Fleet serving in the West Indies* (1798) and *Observations on the Diseases which Prevailed in HM Squadron in the Leeward Island* (1800). In the former publication, Gillespie examined the needs of seamen in that tropical climate including special attention to their diet, the unwholesome airs, the sickly season, infection, ship overcrowding, exposure to the sun and excessive fatigue. The latter work written while Gillespie was at Fort Royal was a more significant work which dissected a precise period of time (November 1794 to April 1796) from his service on board the *Majestic* following its arrival in the Leeward Islands. He described the onset of fever almost immediately after the ship arrived in Barbados in December. It recalls that at the time of Gillespie's arrival, ships belonging to the Grey-Jervis expedition had already been battered by the fever epidemic that began the previous year. So by the time Gillespie met up with Jervis's fleet off Guadeloupe, he found the

⁸³ Lloyd and Coulter, *Medicine and the Navy*, p. 47.

crews ‘pretty healthy, though weak from the loss of men.’⁸⁴ Through speaking with members of Jervis’s fleet, Gillespie attempted to identify the cause(s) of the fever so as not to allow his men on the *Majestic* to fall victim to it. The remainder of the publication was concerned with his experience at Fort Royal Hospital, including the facilities as well as a few of the treatments he utilised during his time there. He also made observations on the Spanish ships who seemed to suffer worse than any other country’s fleet due to their surgeons only issuing tartar emetic and antimonials; remedies which were now out of favour with the English. On the basis of these publications, Gillespie was granted a medical degree by proxy from St Andrews University.

Aside from his publications, a great deal of information about his professional and personal life at Martinique is found in his diaries which still exist.⁸⁵ His observations and notes principally focus on the effects of yellow fever on seamen; however he pays particular attention to the welfare of negro slaves and how diseases affected them. His investigation into the lives of slaves prompted Gillespie to be sympathetic to the abolitionist movement that was gaining strength in England. His writings reveal that during the course of his time at Martinique, he had a relationship with a local mulatto woman named Caroline Heiliger, who was almost certainly his servant or housekeeper, by whom he had two children. Additional entries in his journals recount other aspects of sailors’ lives in the West Indies including an account of a duel between the surgeon and master of the *Bittern*.

At the Peace of Amiens in 1802, Gillespie returned home for a brief period before rejoining the navy in 1804. It was at this point that he was promoted to physician and inspector of naval hospitals in the Mediterranean under the command of Nelson, although he did not join *Victory* until January 1805. As physician, Gillespie proved to be ‘an able professional man, and of an admirable and humane disposition.’⁸⁶ In August of that year when the ship was anchored off Spithead, Gillespie resigned and was granted prolonged leave to visit London. This signalled the end of Gillespie’s naval career and he retired on half pay in 1809. When the Treaty of Paris was signed in 1815, he returned to Paris where he lived for the remainder of his life. By this time he had amassed a significant fortune, partly through prize money and partly through having charge of prisoners-of-war at Martinique hospital. Gillespie died in London in January 1842 at the age of 84, but was

⁸⁴ Leonard Gillespie, *Observations on the Diseases which prevailed on board a Part of His Majesty’s Squadron, on the Leonard Island Station, between November 1794 and April 1796* (London, 1800), p. 8.

⁸⁵ TNA, ADM 101/102/1 to ADM 101/102/12, Dr Leonard Gillespie’s private diary. While there are twelve volumes of his journal, not all are concerned with his life in the Royal Navy. A number of them, particularly the early ones, provide detail of his life in Armagh and the relationship with his sisters.

⁸⁶ NMM, CRK/6/115, Dr Harness to Admiral Nelson, 20 October 1804 in Roger Knight, *The Pursuit of Victory: The Life and Achievement of Horatio Nelson* (London: Penguin, 2006), p. 639.

buried in Paris.⁸⁷ His contributions to understanding of tropical diseases which were included in his publications were based on astute observations and provided valuable insight for future naval operations in the West Indies.

Thomas Trotter

While Thomas Trotter only spent a brief period in the West Indies, his contributions to naval medicine require brief recognition. He was born in Melrose, Roxburghshire, in 1760 where he spent the majority of his early years after which he relocated to nearby Kelso. While in Kelso, he became skilled at arithmetic, French and geography; expertise he would utilise during his life in medicine.⁸⁸ In 1777, Trotter left school in order to pursue the study of medicine in Edinburgh. He remained there for one year, during which time he attended lectures in anatomy and surgery. Following his study, he joined the Royal Navy as a surgeon's mate and, in 1780, Trotter spent a brief time in the West Indies on board the *Berwick* serving in the same capacity. His time in the West Indies was cut short when his ship was damaged in a hurricane and was forced to return to England. In 1782, Trotter was promoted to surgeon and appointed to the *Bustle* and later to the *William*. The latter ship ran aground at the mouth of the River Mersey (where she was stationed) and the ship was paid off.⁸⁹ With the American War of Independence being over, Trotter was relieved of his duties in the Royal Navy and instead found work on board the slave ship *Brookes*, serving as its surgeon. The ship was employed mainly off the coast of West Africa. His displeasure with the slave trade meant he only served on the ship for a single voyage, after which he returned to England a fervent abolitionist.

Upon his return, Trotter resumed his studies, paying particular attention to scurvy. Using the observations he made during his time on the *Berwick* and the *Brookes*, he published his *Observations on the scurvy* in 1786. While there were no statistics, Trotter set out to disprove the three substances the Sick and Hurt Board relied on for the prevention of scurvy. Firstly he commented on sour kraut and its preparation, secondly discussing the elixir of vitriol which he found not 'capable of preventing or curing the scurvy' and a 'mere placebo' and lastly extract of malt introduced by Dr MacBride.⁹⁰ This publication, which ran into a

⁸⁷ R.S.J. Clark, 'Ulster Connections with Nelson and Trafalgar' in *Ulster Medical Journal*, vol 75 (2006), pp. 80-84.

⁸⁸ Brian Vale and Griffith Edwards, *Physician to the Fleet: The Life and Times of Thomas Trotter 1760-1832* (Woodbridge: The Boydell Press, 2011), p. 3.

⁸⁹ Ian Alexander Porter, 'Thomas Trotter, M.D., Naval Physician' in *Medical History*, vol 7 (1963), p. 155.

⁹⁰ Thomas Trotter, *Observations on the Scurvy; with a Review of the Opinions lately advanced on that Disease, and a New Theory Defended, on the approved method of cure, and the induction of pneumatic chemistry: Being an attempt to investigate that principle in recent vegetable matter, which, alone, has been found effectual in the treatment of this singular disease; and from thence to deduce more certain means of prevention than have been adopted hitherto*, 2nd edn (London, 1792), pp. 182-187.

subsequent edition and translation into German, was the first of many for Trotter, who wrote about various diseases and treatments in the navy.

In 1793, Trotter was appointed second physician to John Lind at Haslar hospital (James Lind's son). In the brief time he was there, Trotter observed the enough of the hospital's operations that he was able to publish a pamphlet, *Remarks on the Establishment of the Naval Hospitals and Sick Quarters with Hints for their Improvement* in which he remarked on the requisite changes he felt were required for the improvement of those facilities. A year later, Trotter was appointed to be the Physician of the Channel Fleet to Lord Howe. During that time, Trotter was an immense supporter of the distribution of lemon juice in the prevention of scurvy, which was ushered in while he was serving with Howe. His experience with the Admiral gave Trotter the opportunity to pen his impressive *Medicina Nautica* in 1797, which was followed by a second volume in 1799 and a third in 1803. The volumes contained his comments on scurvy, contagion, typhus, yellow fever, catarrh, dysentery and smallpox. Not long before the third volume was published, Trotter retired from the navy, but, like Blane had done, he remained active in naval medicine. He published various medical works (not all naval related) while he served as a private physician in Newcastle-Upon-Tyne. The most germane to the navy was *A Practicable Plan for Manning the Royal Navy, and Preserving our Maritime Ascendancy, without Impressment* which included Trotter's thoughts on the reduction of the number of seamen in the nineteenth century and the preservation of seamen who were ordered to the West Indies.⁹¹

Trotter retired from his private practice in 1827 and went to live near his birthplace. He remained there for three years before relocating to Edinburgh. In 1832, he returned to Newcastle where he died that same year. Throughout his life, Trotter devoted himself to the wellbeing and safeguarding of the navy's personnel. His contributions through his numerous publications and the avocation and insistence for the distribution of lemon juice in the navy can no doubt be regarded as one of the most vital contributions to naval medicine in the late eighteenth century.

William Smellie Forbes

There were a handful of surgeons serving in the latter half of the eighteenth century who proved ineffectual in their duties and therefore posed a hazard to sick seamen. Through their inadequate and often reckless practices, a number of seamen were further injured or

⁹¹ Thomas Trotter, *A Practicable Plan for Manning the Royal Navy, and Preserving our Maritime Ascendancy, without Impressment: Addressed to Admiral Lord Viscount Exmouth*, KGB (Newcastle, 1819).

forced to return to England as an invalid. During war time, losing men to non-life threatening illnesses severely hampered England's efforts abroad. Dangerous behaviour like this was not tolerated and the small number of men who were reprimanded because of their dire practices were quickly removed from service. One of the most serious culprits in the West Indies was Dr William Smellie Forbes who served for a number of years as surgeon of the Jamaica hospital.

As early as 1794, Forbes was employed as the naval surgeon on board the *Europa* under the command of Rear Admiral John Ford. While a portion of the Jamaica squadron was ordered to St Domingo (the present-day island of Haiti) from September 1793 until April of the following year, Ford required all sick men to be treated on board their respective ships. At the beginning of April, the health on board ships at St Domingo worsened predominantly because they were experiencing a lack of Peruvian Bark and fresh provisions. Ford ordered the ships round to Mole St Nicola (on the same island) and for a hospital to be established there. William Smellie Forbes was ordered off the *Europa* and to commence service as the hospital's surgeon. Ford selected Forbes because he was 'a very able man in his profession' and put him on the same footing and salary as the surgeon at Jamaica hospital, that being fifteen shillings per day.⁹²

Not long after Forbes took up service at Mole St Nicola, the surgeon at Jamaica hospital, Robert Wood, who had been in residence since 1764, died in January 1795. At this point it can be supposed that Ford regarded Forbes's work very highly since he selected the latter to assume the role of the surgeon at Jamaica hospital despite pleadings from Wood's assistant surgeon, John Fitzsimmons. According to the assistant surgeon, who wanted his predecessor's position, he had served at the hospital for thirteen years and had been engaged constantly in naval service since 1779 as both a surgeon's mate and a surgeon.⁹³ Even with Fitzsimmons's naval career in the West Indies spanning over fifteen years, Ford opted for Forbes to move to Jamaica to fill Wood's position.

Initially Forbes appeared to take his job seriously and his attention towards the men in hospital was very apparent. No sooner had he taken up residence at Jamaica hospital he began to complain about the condition of the buildings, specifically the damage to the pilings from the ravages of the sea worm. The brick wall that relied on these pilings, he claimed, had given way significantly enough to produce a gap allowing the seamen in the hospital to communicate freely 'with the worthless low class of people in this town, who

⁹² NMM, ADM/F/25, Rear Admiral Ford to Sick and Hurt, 15 August 1794.

⁹³ AL, MSS.179, vol 4, John Fitzsimmons to Rear Admiral Ford, 31 January 1795.

industriously supply the seamen with spirits and other things extremely prejudicial to their healths, and it also affords a ready outlet for desertion.’⁹⁴ Men from the hospital were able to make their way down to the wharf at night where boats came to take them away so they could be put on board merchantmen ready to weigh anchor the next morning in order to escape naval service. Forbes’s attention to detail and his initial operations at Jamaica hospital impressed his commander-in-chief, although within a few years his superiors found his conduct and methods a disappointment.

The first complaint against Forbes’s conduct came from Samuel (sometimes William) Parker, late surgeon of the *Ceres* followed by another one filed five days later by James Tosh, late surgeon of the *Valiant*.⁹⁵ Both surgeons had just returned to England from the West Indies on their respective ships and were under orders to carry back a number of invalids from the hospital at Jamaica. According to Parker’s account, thirteen men perished during the voyage, while another two died almost immediately when they arrived at Deal hospital. The deplorable state of the men when they embarked at Jamaica, he surmised, was the cause of such a high mortality rate. He claimed that Forbes sent the men on board with most of them suffering from fluxes, large decaying ulcers and ‘extensive mortification of the worst nature’ and that he never saw ‘such wretched objects.’⁹⁶ To understand Parker’s full annoyance and dissatisfaction with Forbes’s conduct, it is worth quoting the former’s letter at length:

...I am truly sorry that such a task falls to my lot, but not being myself at all culpable in the business, and as much blame was attached to me by some of the invalids on the first outset of the voyage for allowing them to come on board in such a wretched state, it is necessary for my own satisfaction also to point out on whom the censure should really fall I say, most deservedly on Mr W S Forbes. As I conceive there has been very great neglect on the part of the surgeon, I consider it an obligation strictly incumbent on me to write this narrative as it essentially alludes to the...comfort of afflicted seamen, as well as the honour and reputation of HM’s Service. Tis very true the men complained most egregiously and I am grieved to say they had the greatest reasons to do so, their murmurings were continual and their grievances could not be redressed, they lingered and died a cruel and miserable death shocking to humanity, it is to me equally strange and surprising that Mr Forbes should have so far divested himself of humanity and not to have represented the state of those unhappy men to the commander-in-chief and suffered them to remain and die in the hospital, because the nature of their diseases made it morally impossible to render them any real service. I never saw such wretched objects, it was cruel to send them in so unprovided a manner

⁹⁴ AL, MSS.179, vol 4, William Smellie Forbes to Rear Admiral Ford, 30 April 1795.

⁹⁵ At times Samuel Parker is named as William Parker.

⁹⁶ NMM, ADM/F/30, Samuel Parker to Sick and Hurt, 11 July 1799.

on board of a ship where they were destitute of every convenience and comfort of life, how painful to see man in such a melancholy situation and not have it in ones power to afford them redress. In order to show Mr Forbes's illiberal and parsimonious conduct, I must point out that the only articles he sent me were about a pound of lint and a few yards of narrow linen, which being used sparingly lasted me ten days...

...It is a painful and distressing circumstance for any surgeon to have such a number of deplorable objects thrown upon his hands, when let him do what he will he has the unpleasant prospect before him that finally he cannot be of any real service to them, this circumstance is so literally true that it need no exaggeration...To Mr Forbes alone I ascribe all their misery and I have to present him with their execrations, my heart positively almost sent in twain, to hear them exclaim and behold their misery, it would have been charitable to have tied shot to their feet and thrown them into the sea and thereby put an immediate end to their sufferings, some method should surely be taken to put a stop to such proceedings in future for it absolutely reflects disgrace on the country and human nature. I conceive the circumstance only wants a representation to be remedied, and I hope you will excuse me for troubling you with this one as I trust it may be at least sufficient to pave the way for an investigation.⁹⁷

Receiving Parker's letter, followed quickly by a much shorter complaint from Tosh, forced the Sick and Hurt Board to order a full investigation into the hospital proceedings at Jamaica by the commander-in-chief and surgeons on station. Aside from the enquiry into Forbes's actions, the Board recommended that a strict policy be disseminated to all hospital surgeons serving on foreign stations detailing how invalided men were to be returned to England.⁹⁸ Suggestions for their new policy included the issue of bandages sufficient enough for the length of the voyage per person and a quantity of provisions available on station including sago, barley, onions, portable soup and wine.

Once news of the investigation reached Forbes in Jamaica, he promptly defended his actions in a letter to the Sick and Hurt Board.⁹⁹ In his letter, Forbes claimed that he never received guidelines for transferring invalid seamen from the hospital to ships for carriage to England. As per the 17th Article of the surgeon's general instructions which specified that surgeons needed approval from officers on station to invalid men, Forbes applied to Admiral Sir Hyde Parker, Commander-in-Chief at Jamaica, for a survey of the men to be carried out by three senior captains and their respective surgeons, before sending those invalids on board the *Ceres* and *Valiant*. The result of the survey was that the seamen needed a change of climate and should be removed from the island as soon as possible.

⁹⁷ Ibid.

⁹⁸ NMM, ADM/F/30, Sick and Hurt to Admiralty, 9 October 1799.

⁹⁹ TNA, ADM 1/249, William Smellie Forbes to Admiralty, 6 December 1799.

On the day of the transfer to the *Ceres*, Forbes claimed he cleaned and dressed the men's wounds, which was attested to by his first assistant surgeon. Forbes also asserted that, 'every one of the invalids discharged into the two ships expressed the greatest joy and satisfaction on their being put on the list for embarkation' and the weaker men left behind would have 'cheerfully...risked the passage home, from their minds being impressed with the knowledge and belief of the unhealthiness of the climate.' The hospital surgeon felt he followed all requisite instructions to ensure the safe transport of patients and any ensuing deaths were not as a result of his care. Admiral Sir Hyde Parker's reaction to the complaints made by the surgeons of the *Ceres* and the *Valiant* against Forbes's conduct favoured the hospital surgeon and Parker accused the *Ceres*' surgeon of acting improperly as he had 'no foundation for such illiberal accusations.'¹⁰⁰ It seems the Sick and Hurt Board believed the testimony of Forbes and Admiral Parker largely because of the lack of written instructions regarding transportation of invalids on board naval ships.

Forbes continued in his role as the hospital surgeon for a further two years before another complaint reached the Sick and Hurt Board again regarding the condition of invalids leaving his care at the hospital. This time the complaint originated from Mr McEvoy, Forbes's own assistant surgeon at the hospital, and once again, the Forbes underwent scrutiny and was allowed to continue his service.¹⁰¹ For making the complaint, McEvoy was completely removed from the navy. It was not long before Mr Lander, surgeon of the *Juno*, put forward a similar complaint regarding twelve invalids sent from the hospital into his care for carriage to England.¹⁰² The consistent complaints, by this time, set off a red flag to both the Admiralty and the Sick and Hurt Board. Following Lander's letter to his Commander-in-Chief, Admiral Duckworth, a plan was devised with a number of captains and surgeons which involved attending the hospital unannounced, thereby not allowing Forbes the time to disguise a potentially unpleasant situation. Despite the unannounced visit, the captains and surgeons found the hospital to be in order and 'perfectly clean and wholesome' and 'saw no ground for complaint.'¹⁰³ In fact, Duckworth assigned blame to Dr Blair, the Physician of the squadron, whose job it was to visit the hospital most days of the week and to address any shortcomings.

Despite a handful of complaints, Forbes continued in his job for the remainder of 1802, although his service was to be short lived. Under orders from the Admiralty, Duckworth dismissed the surgeon from his role (he was also removed from the naval list of surgeons)

¹⁰⁰ NMM, ADM/F/30, Admiral Sir Hyde Parker to Sick and Hurt, 24 January 1800.

¹⁰¹ TNA, ADM 98/76, Sick and Hurt to Rear Admiral Montagu 10 March 1802.

¹⁰² TNA, ADM 1/252, Admiral John Duckworth to Admiralty, 1 October 1802.

¹⁰³ Ibid.

and replaced him with James Gregory, the surgeon from the *Leviathan*.¹⁰⁴ The grounds for Forbes's dismissal were abundant, but the main reason was the number of complaints received from various surgeons became too large to ignore. In addition to the numerous allegations of ill treatment towards the patients, the Admiralty noticed Forbes's excessive spending at Jamaica hospital, which, during his eight years of service, totalled £36,733, a figure which made the Admiralty extremely uncomfortable.¹⁰⁵ Costs appear to have spiralled due to Forbes's inability to manage diseases properly, and indeed on one occasion, he invalidated two seamen who were deemed fit by other surgeons who evaluated them.¹⁰⁶ The poor care coupled with the blatant disregard to operate with financial prudence ultimately proved too much for the administration in London. Certainly the behaviour of Forbes at Jamaica hospital is by no means indicative of the general calibre of surgeons and medical personnel stationed in the West Indies. During his tenure there is no question an indeterminate number of seamen suffered largely due to his neglect and inability, but through the vigilance of other surgeons who spoke up against Forbes such as Samuel Parker of the *Ceres*, his inabilities were exposed and demonstrated that Forbes was indeed a 'disgrace on the country and human nature.'¹⁰⁷

Conclusion

Advancing medical practices that were ushered in by the navy were particularly evident during the second half of the eighteenth century. One of the main impetuses for improvement over time was most certainly the dedication and determination of naval officers and surgeons who had experience serving in the West Indies.¹⁰⁸ Their first hand observations compelled them to change the health practices in that region, and when it proved manageable, medical care went from being curative to chiefly preventative. A number of individuals serving in the West Indies at this time are particularly noteworthy for the work they carried out. The earliest and most recognisable figure is James Lind who devoted the better part of his life to the navy, first at sea and the remainder of his career at Haslar naval hospital. He performed what some believe to be the first 'classic therapeutic trial' in history and was one of the driving forces behind the eradication of scurvy in the navy. Surgeons were not the only individuals concerned with improving the health of the seamen in the West Indies. Admiral Robert Man was integral in establishing a better

¹⁰⁴ TNA, ADM 1/253, Admiral John Duckworth to Admiralty, 15 January 1803.

¹⁰⁵ TNA, ADM 102/431, Jamaica Hospital Muster Book, 1803.

¹⁰⁶ Ibid.

¹⁰⁷ NMM, ADM/F/30, Samuel Parker to Sick and Hurt, 11 July 1799.

¹⁰⁸ As previously discussed, the 1770s and 1780s were particularly healthy compared to other decades in the century as there were no noteworthy fever epidemics.

system of care on shore at Antigua through his persistent correspondence with both the Admiralty and the Sick and Hurt Board. When the care of seamen on shore was engaged by an unprincipled and greedy contractor, Man took the unprecedented step of interceding on the Admiralty's behalf to keep the men in a more favourable situation. His concern did not stop there. Man advocated erecting a purpose-built hospital at English Harbour to establish an efficient and healthy place where men could recuperate quickly and return to duty. Although the hospital was not erected during Man's time in the West Indies, his letters certainly influenced the Sick and Hurt Board's approach towards treating sick seamen at Antigua.

A decade later, Admiral George Rodney and his personal physician Gilbert Blane arrived in the West Indies and found the situation concerning the health of seamen much the same as Man did. The on shore facilities were inadequate and the supply of necessities and fresh provisions were almost non-existent. Through the stern discipline imposed on captains in Rodney's squadron and the demands made upon their surgeons by Blane, the duo reduced sickness and mortality levels considerably. So significant was this reduction in sickness, that of the thirty-six ships-of-the-line present at the Battle of the Saintes in 1782, only two were considered unhealthy. Once back in England, Blane continued his pursuit of creating a healthier environment on board naval ships by becoming a Commissioner on the Sick and Hurt Board where he supported a number of crucial changes to the seamen's diet, most significantly the issue of lemon juice to suppress scurvy. Even when Blane left the Board seven years later, he continued his commitment to naval health and hygiene through his publications and the setting up of the Blane naval medical medal. Lind and Blane no doubt influenced the way Leonard Gillespie managed the men on board his ships sailing off the coast of West Africa toward the close of the century. Utilising alternative methods to what was recommended by the Sick and Hurt Board, Gillespie was able to keep men healthy in a region notorious for outbreaks of malaria. The good effects from his assiduousness were carried over to his time spent as the surgeon of Martinique naval hospital and serving as Physician to Nelson's squadron in the Mediterranean prior to Trafalgar.

Even naval surgeons who did not spend a great deal of time in the West Indies had a considerable impact on the progression of medical practices. Through observation and experimentation, surgeons like Thomas Trotter were able to gather enough evidence to publish practical guides focusing on specific diseases and their preferred treatments. For Trotter in particular, he utilised his varied experience in the Royal Navy, on board a slave

ship, time spent at Haslar hospital and his private practice in Newcastle to disseminate his findings to others in the service. His writings also influenced the navy issuing lemon juice to the fleet as a preventative; the resulting saving in manpower during the Napoleonic Wars was certainly advantageous.

Not all members of the navy were out to improve the health of seamen. Although they were few and far between, there were a number of dubious men who put their own greed before the wellbeing of the men. Contractors such as Mr Grant during Admiral Man's service at Antigua is a prime example of just such a person. Grant's own financial interests drove him to propose the removal of sick seamen to a location further away from the dockyard which was potentially injurious to patients. Even a handful of the navy's own surgeons put seamen at risk due to their questionable practices. When enough complaints were submitted by surgeons on the Jamaica station about the way in which William Smellie Forbes handled the return of invalids to England, the Admiralty and the Sick and Hurt Board took appropriate measures to remove him from service.

Naval men understood the importance of keeping the entire fleet healthy, especially during times of war. By following rules set out for surgeons, most ships enjoyed an average state of health, although tropical illnesses in particular continued to wreak havoc on crews in the West Indies. Through the vigilance and dedication of a small number of individuals with firsthand experience in the tropics, beneficial changes in health and hygiene practices were gradually rolled out in the Royal Navy thereby reducing the overall percentage of death and disability from disease and increasing the overall effectiveness of the fleet toward the end of the eighteenth century.

Chapter 6

Development of Hospitals in the West Indies

In the West Indies prior to the 1740s, there were no permanent medical facilities for use by the navy's sick. Until that time it was accepted practice for the navy to rely on the sick quarters system which involved engaging temporary rooms or buildings on an 'as-needed' basis. This served the Admiralty well during the first half of the century for they were not required to lay down large amounts of capital to erect facilities and when there was no longer a need, they simply did not pay out money for local lodging. However, there were numerous problems with this system with regard to the type of quarters that were available. It was common for rented rooms to belong to public houses with landlords who often encouraged the seamen to drink alcohol.¹ An additional consequence of using this system was that it was difficult for a surgeon to attend to patients ashore under his supervision as they were typically spread out in town. Lastly, the placement of diseased and contagious men within a semi-healthy population could and did have disastrous effects. Diseases were prone to spread rapidly through towns and infect the general populace.

By the 1750s, the sick quarters system began to fall out of favour with the Admiralty. Too many seamen failed to recover sufficiently enough to return to active service. Purpose-built hospitals appealed to the Admiralty and the Sick and Hurt Board as hospitals gave them control over alcohol distribution and consumption, the role the surgeon played and the rate of desertion. Hospitals in the eighteenth century are not to be confused with present-day facilities. They were, in essence, buildings where people simply went to recover from their illness or a place where incurables were sent to live out the rest of their lives. It was only when the ships' surgeons were desperate that they would turn to the hospital or sick quarters for relief. The navy built two successful permanent hospitals in England: Haslar hospital in Portsmouth and Stonehouse hospital in Plymouth. A handful of hospitals were also established overseas for the Mediterranean fleet at Gibraltar and Port Mahon, with a temporary facility at Lisbon.

Naval hospitals did not exist in the West Indies during the early eighteenth century. The method for caring for sick seamen on the Jamaica and Leeward Islands stations evolved from the sick quarters system to a contractor-based system, which provided a marginally better service for the sick. Contractors were appointed to supply a building or group of

¹ N.A.M. Rodger, *The Wooden World: An Anatomy of the Georgian Navy* (London: HarperCollinsPublishers, 1986), p. 109.

buildings to lodge sick seamen during their recovery. Additionally, they were contracted to provide victuals and other non-medical necessities. For their service, they were paid a set fee per man per day rather than a monthly salary.

While the contractor system was an improvement over the sick quarters system, an overwhelming number of complaints were returned to the Admiralty especially with regard to the Jamaica station. Accommodations on both stations proved inadequate and the decision was taken by the Admiralty to erect the first permanent naval hospital at Port Royal, Jamaica in the mid-1740s, followed by a permanent facility at English Harbour, Antigua in the 1790s. Other West Indian islands had temporary hospital facilities at various times throughout the study period including Barbados, Martinique and St Lucia. This chapter will follow the hospital development at each island individually with the exception of Antigua which is dealt with as a case study in its own chapter because it is the only facility that was conceived, built and used within the time period of this thesis. The remaining islands considered in this chapter illustrate the general problems of maintaining both the permanent buildings and temporary facilities scattered around the West Indies.

It is worth mentioning the position of the Sick and Hurt Board with regards to the standard of hospital accommodations which they mandatorily demanded be available to sick men irrespective of the hospital's location. The Board attempted to maintain the health of seamen by insisting on stringent levels of cleanliness and routine inspection by surgeons. Very specific instructions were distributed in 1785 outlining the specific guidelines for the seamen's onshore accommodations:

All hospitals should be chosen in [an] open, elevated and airy situation, with windows in every ward in opposite directions, and a large airing ground for the recovering patients to walk in. The more space each man has to breath in the better, but as this space must have its limitation somewhere, we think that 600 cubic feet is the least which ought to be allowed; thus a ward 20 feet broad, 60 feet long and 10 high may have 20 sick men placed in it, and not more; if the height is above 10 feet, of course it may with safety receive more men, always observing the rule, that each man shall have a space of 600 cubic feet...In time of war when small hospitals are hired, or built for temporary purposes, it would be incurring an enormous expense to allow every man so great a space, and it does not seem necessary...Commonly the heads of the cradles are placed against the walls, and it is ordered that there should be three feet between each cradle, but this is not a proper rule, for where the height of the ceiling is very great, the cradles may be placed so close, as just to give sufficient room to get round them...Particular attention should be had that hospitals should be so situated to command a plentiful supply of good water, and that the soil and filth should never stagnate, but be carried off easily and expeditiously...

...When a man comes to the hospital, if there is the least suspicion of an infectious disorder, or even if he is ragged and dirty, his clothes should be instantly taken off, before he is conducted into any of the wards, and his body well washed; the hospital dress should be put on and his own clothes and bedding well fumigated, with sulphur thrown upon burning charcoal, and when discharged from the hospital and his clothes returned to him, the hospital dress which he put off never to be used by any man, till it has undergone fumigation. Whenever any ward is emptied of the sick the floor and cradles ought to be well washed, the room fumigated and the walls white washed, and then all the windows thrown open, that no particle of infection may remain.²

Jamaica

Jamaica, located in the eastern Caribbean Sea, was a vital territory in the British Empire and accounted for a substantial portion of imports to England (Figure 6.1). As was outlined in Chapter 4, the number of men on the Jamaica station was typically larger than the number at the Leeward Islands station. Subsequently, that meant the volume of sick men sent ashore was also greater. In May 1738, the navy appointed John Hume surgeon and agent at Jamaica at a salary of £250 per annum. Until that time, Hume had been the surgeon on board the *Hampton Court* but was assigned to caring for sick men onshore after his predecessor resigned due to ill health.³ Upon taking up his appointment Hume located a small building on the island to utilise as the naval hospital; however it was not sufficient to house the considerable number of sick belonging to Admiral Vernon's fleet which numbered upwards of forty-five ships and 15,149 men.⁴ The building Hume hired was only capable of housing sixty-two men and was instantly occupied. When an additional eighty were put on shore in October 1739, Hume corresponded with Vernon requesting to hire a further house at a cost of £3 per month, to which the latter agreed. The fleet was so sickly that by the following January, Hume was forced to rent an additional seven houses in Port Royal and requested three more to manage the sick ashore.⁵

In order to rent houses, provide proper victuals as well as an adequate number of assistants to attend the sick, Hume was forced to spend an exorbitant amount of the government's money. A bill submitted in October 1742 which covered some of the above expenses totalled £420. By the time the bill reached London, the Admiralty had already determined to do away with the current system and to erect a permanent hospital in an area named

²TNA, ADM 98/14, Sick and Hurt to Admiralty, 1 February 1785.

³ Duncan Crewe, *Yellow Jack and the Worm: British Naval Administration in the West Indies, 1739-1748* (Liverpool: Liverpool University Press, 1993), p. 12.

⁴ *Ibid.*, p. 12. The building Hume located dated from 1729.

⁵ Christopher Lloyd and Jack L.S. Coulter, *Medicine and the Navy 1200-1900*, vol 3 (Edinburgh: E&S Livingstone, 1961), p. 101.

New Greenwich (Figure 6.1). The proposal to build a hospital at Jamaica first came from Admiral Hosier prior to Vernon taking command of the station and, when Vernon assumed control, he also wrote to the Admiralty requesting to build a hospital rather than continue to hire houses. Crewe suggests that ‘Vernon’s motives for proposing the building of a hospital were mixed but his fundamental concern was to keep his ships sufficiently manned to ensure their operational efficiency.’⁶ His original proposal to the Admiralty made that intention extremely clear:

...Another chargeable article I observe here is house rent for hospitals and a great inconvenience from their being in a town full of punch houses, where as soon as they can crawl they get thither and make themselves sick again before they are half well, for which I will beg leave to suggest to you a model for an hospital that if you would send over to us ready framed here, or order to be built here by timber as cheap as we could get it I apprehend would be a great [saving] to you in case of a long war, and be a means of preserving many men’s lives and securing many more from desertion.⁷

The proposal from Vernon regarding the hospital design was simple. He felt the building should be a large square shape with only one outside door and small outside windows to prevent desertion as well as limiting the number of temptations that could be brought in. He suggested an open area at the centre of the building and an outdoor covered area to allow the sick to go outside for fresh air. Vernon also recommended the building be two-stories high to accommodate a large number of sick men as well as comprising storerooms and apartments for the officers and surgeon.⁸ While the Navy Board appreciated Vernon’s suggestions, they did not agree on his specific design. Instead they felt that the building should be kept to one storey because its intended fabrication was timber which made it more vulnerable during inclement weather. With the dimensions laid out, the Navy Board concluded their design was capable of having thirteen separate wards and accommodate up to 632 men.⁹ Despite the Navy Board wanting to move ahead with their plans, the surveyor of the navy delayed construction as he felt a two-storey building made of stone would be the best option in that region since it was prone to hurricanes and earthquakes.¹⁰ Notice was sent to Vernon authorising the hospital’s erection according to the naval surveyor’s plan and instructions were given later that year to begin construction.

⁶ Crewe, *Yellow Jack and the Worm*, p. 31.

⁷ TNA, ADM 1/232, Admiral Vernon to Navy Board, 31 January 1740.

⁸ Ibid.

⁹ TNA, ADM 106/2178, Navy Board to Admiralty, 25 April 1740.

¹⁰ TNA, ADM 3/44, Admiralty Board Minutes, 10 May 1740.

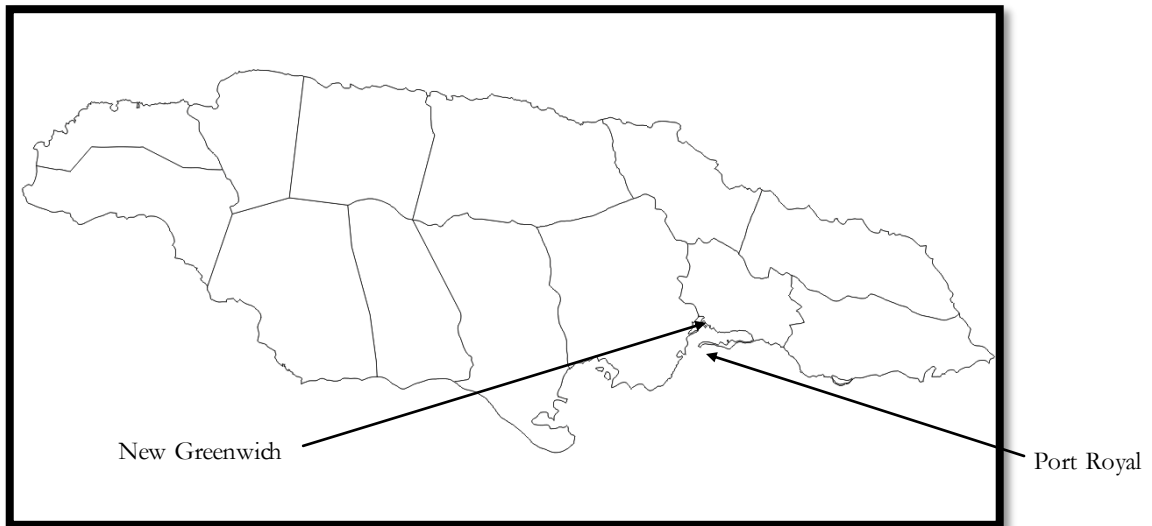


Figure 6.1 – Map of Jamaica

Vernon was succeeded on the Jamaica station by Admiral Sir Chaloner Ogle before the hospital was completed. Ogle reported the progress of the construction in November 1742:

The four sides of the body of the roof of the hospital are entirely framed and ready to be placed upon the walls when they have bricks enough to carry them up.

The whole front and one third of the easternmost side of the roof are raised on the walls and boarded, the cornice fixed all round and the shingling in hand. The piazza to the front now raising and that of the easternmost end as far as they have columns turned to go on with, which will soon be completed. The other timber and materials are preparing for the floors etc as fast as possible.

The bricklayers work on the front walls both outside and inside are entirely completed, the easternmost walls are almost and the north and west walls outside and in are three quarters completed.

There are bricks enough to finish the east walls and to begin the going on with the outhouses which will all be landed within a week.¹¹

By September 1743, the plastering and whitewashing were nearly complete and 150 cradles had been fabricated. Small houses on the hospital grounds were also nearly completed.¹² Finally, New Greenwich hospital accepted its first patients in October 1743 at which time Hume was able to discontinue the use of the numerous rented facilities. The hospital, built in roughly three years should have, in theory, relieved a great deal of stress from Hume as he was able to treat the sick in one facility rather than having to travel between each rented

¹¹ TNA, ADM 1/233, Admiral Ogle to Admiralty, 5 September 1742.

¹² Crewe, *Yellow Jack and the Worm*, p 41.

accommodation. Unfortunately, the new hospital proved a more difficult situation than the Admiralty had imagined.

As early as January 1744, Hume wrote to the Sick and Hurt Board describing a severe outbreak of malaria amongst the patients at the new hospital. He calculated that ‘no one in a hundred who has lodged in or near the hospital for two or at most three weeks has escaped [the disease]...whereof the sick were sent ashore, they were sure to have it supervened or followed by an intermitting fever.’¹³ Once the patients at the hospital contracted the fever, Hume observed their sufferings could not be relieved by routine medications. The patients’ stomachs were less able to ‘bear either medicine or nourishment, the paroxysms became long and irregular, the intermissions short and imperfect, then succeeded a diarrhoea, hydropic, and anasarcaous swelling, and in this diseased’ state they lingered ‘without hope till their strength was wasted and then died miserably emaciated.’¹⁴ For the quarter ending December 1744, Hume estimated that he buried ‘no less than 128 in the whole quarter.’ As further proof of the devastation felt at the hospital at New Greenwich, Hume provided figures comparing that facility with the aggregate amount from the rented houses at Port Royal (Table 6.1). He claimed that the figures for each hospital were calculated over a 12-month period during which time each had a similar proportion of men sent ashore. Hume recognised that the men sent ashore to the Port Royal houses would have been tempted by the availability of alcohol and other debauches which would have affected the number of men who were invalided or deserted.

The table highlights some very significant differences from the old hospital to the new one. At Port Royal hospital, the mortality rate for 1743 was 19.2 per cent and for the first year at the new facility at New Greenwich, that figure soared to 28.2 per cent. Another notable increase was the number of men discharged as invalids which went from 6.9 per cent in 1743 to 15.0 per cent in 1744. Roughly the same percentage of men deserted from the hospitals in both years, therefore indicating there was a drop in the number of men who were cured and returned to their ships. That figure was 64.0 per cent in 1743 which sharply declined to 46.8 per cent the following year.

¹³ NMM, ADM/F/7, Sick and Hurt to Admiralty, 17 January 1746.

¹⁴ *Ibid.*

Port Royal Hospital 1743¹⁵					
Ships Name	No. of Men put Ashore	Discharged Cured	Discharged Invalid	Discharged Dead	Deserted
St Albans	39	30	6	3	0
Falmouth	212	142	8	38	24
Adventure	86	53	6	10	17
Greenwich	35	27	5	3	0
Assistance	222	128	16	60	18
Total	594	380	41	114	59

New Greenwich Hospital 1744					
Ships Name	No. Of Men Put Ashore	Discharged in favourable intermissions	Discharged Invalid	Discharged Dead	Deserted
Orford	103	43	20	33	7
Prince of Orange	199	73	31	60	35
Assistance	50	22	12	12	4
Biddiford	11	4	1	6	0
Drake Sloop	15	6	6	2	1
Plymouth	78	61	5	9	3
Rippon	130	65	13	43	9
Total	586	274	88	165	59

Table 6.1 – Comparison of Sick Men Sent Ashore at Jamaica Hospitals in 1743 and 1744¹⁶

Hume had justifiable cause for concern over these numbers. He considered the reason of the significant spike in deaths and the decreasing number of cured men sent back to work, and cited the ‘situation of the hospital’, but was careful not to offend the Crown who had just spent a considerable sum for its erection.¹⁷ Hume suggested that if sick men remained on board their ships rather than being sent ashore, the men had a better chance at survival. He said, ‘I imagined that if such men as had fair intermissions [from their illnesses] were kept on board their ships in the harbour, they might by an emetic and some [Peruvian] Bark, get rid of their fevers aboard, without the certain danger of relapsing.’¹⁸ Nearly a year later, he retracted his judgment on the location of the hospital for being too rash. In November 1745 he wrote:

...its situation being very delightful, on a rising ground at a quarter of a mile distant from the sea, from which to the hospital gates, the land rises by a gradual and easy ascent, the soil is dry and the declivity of the situation suffers no wet to lie upon it. The fields round it are all open and clear and it is plentifully supplied with excellent water by a spring in its centre.¹⁹

¹⁵ The use of the word ‘hospital’ is meant to represent the collection of houses used by the navy to house men onshore at Port Royal prior to the erection of the hospital at New Greenwich.

¹⁶ NMM, ADM/F/7, Sick and Hurt to Admiralty, 17 January 1746.

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Ibid.

Still unsure of the exact reason for the eruption in intermittent fevers, Hume thought it was possible that the hot and cold temperature fluctuations were the cause, although from his letter, he appeared hesitant to completely disregard the idea that the hospital's location was to blame. Again he wrote:

...there is some noxious quality in the air of the place [the island], whatever be the occasion of it, which strongly and constantly favours the production and continuance of obstinate intermitting fevers in people of all ages and constitutions, is unquestionably evident from what has constantly happened to all the sick sent there as well as to the surgeons themselves, their mates, to the stewards and their wives, to the agent victuallers and storekeeper clerks and to the marine guards doing duty; few or none of all these who had lodged a fortnight in or near the hospital, escaping an intermitting fever, the consequences whereof often proved fatal.²⁰

Hume's original suspicions were correct; it was the location of the hospital that triggered such high occurrences of intermittent fevers. A number of morasses laid in close proximity to the hospital, although Hume concluded they were too far away to be emitting noxious vapours to cause the fevers. These considerable bodies of stagnant water laid both to the east and west of the building. Hume's first mate, John Murray, disagreed and remarked about the 'noisome and disagreeable smell' the morasses emitted which were easily smelled at the hospital.²¹ Modern medicine has since proved that malaria is spread by the *Anopheles* mosquito which breeds in areas of high temperature and stagnated water. As was discussed in Chapter 2, during the eighteenth century, malaria, as with most other diseases, was thought to be caused by foul air. Even the name of the fever 'mal aria' literally translates from Italian into 'bad air'. Insects were never considered as the cause in the communication of intermittent fever until the late nineteenth century. It was the nearby position of the morasses and the insects that thrived in their stagnant waters that triggered such a high mortality rate at the hospital. At one point, Hume suggested the morasses be drained to rid the hospital of the smell and noxious airs but felt 'the expense would be immense' and was uncertain if the 'matters would thereby be mended.'²²

In order to combat the raging malaria, Hume wrote to Ogle in December 1744 requesting that the ships' surgeons not send men ashore whose only complaint was an intermittent fever. At that time, the hospital, according to him, already had 300 men and could not cope with too many more. Knowing that intermittent fevers were not contagious, Hume

²⁰ NMM, ADM/F/7, Sick and Hurt to Admiralty, 17 January 1746.

²¹ NMM, ADM/F/7, John Murray to Sick and Hurt, 17 January 1746.

²² NMM, ADM/F/7, Sick and Hurt to Admiralty, 17 January 1746.

felt that they would be better treated on board their ships.²³ This also prevented sick men coming ashore and contracting any further diseases. Ogle wrote to the surgeons of the ten ships on station as well as the surgeon of Port Royal dockyard requesting them to consider Hume's proposals.²⁴ Those surgeons quickly replied suggesting they not only disapproved of Hume's proposal to keep sick men on board, but also attacked his management of the hospital and requested that Ogle make a strict enquiry into the practices there.²⁵ Ogle ordered the ships' surgeons ashore to assess the management of the hospital. They reported that, following an inspection of every ward and nearly every patient, they were unable to find a great deal of fault with the state of the hospital. Their only significant observation was regarding the medicines which were kept on site for the patients. They believed that:

the medicines are good in their kind, and the prescriptions in general well adapted to the cases of the patients, but that the Bark given for the intermitting fevers at present the epidemic disease, is in too small quantities and not repeated as it ought to be, which in great measure is owing to the want of [surgeons] mates.²⁶

Hume explained that there was a shortage of mates because two of them had recently died: 'Mr Sterling the third mate [died] that very day [the inspection day]' and Mr Savage, the second mate, since dead, was ill in his bed on the inspection day and unable to assist at the hospital in any capacity.²⁷

John Murray, the former first mate at the hospital was forced to resign his position after only 13 months in order to return to England for the recovery of his health. In Murray's report to the Sick and Hurt Board on the state of New Greenwich hospital, he painted a similar picture as Hume of the bad state of patients and the location of the building. According to him, he observed 'that of about 700 men sent during my stay there, I do not know of above two or three that were not seized with the intermitting fever after having been three weeks in the place, and I am credibly informed that the same observations still holds good.'²⁸ He cited the same reasons which Hume had assumed; the location of the hospital, the inconvenient structure of the building and the sudden changes and extreme ranges in temperature on the island.

²³ Ibid.

²⁴ Ibid.

²⁵ Ibid.

²⁶ Ibid.

²⁷ Ibid.

²⁸ NMM, ADM/F/7, John Murray to Sick and Hurt, 17 January 1746.

At one point in January 1746, the Admiralty discussed whether or not to give an order to drain the morasses which they agreed was the likely cause of the rash of intermittent fevers. However, nearly ten months later, Captain Mitchell of the *Stratford* at Jamaica (who was temporarily in charge of the Jamaica station following Admiral Daver's death from yellow fever) wrote to the Admiralty suggesting that draining the morasses would be expensive and would not prove any benefit to the hospital.²⁹ The Sick and Hurt Board were not convinced that Mitchell was correct in his assumption and they immediately wrote to the Admiralty expressing their feelings on the undertaking. The Board said they felt 'it highly necessary [that] it should be drained, if possible to be done for a reasonable expense.' If the Admiralty did not see fit to drain the morasses, the Board proposed, as an alternative, that there should be

some other provision for accommodating His Majesty's sick and wounded seamen set on shore at Jamaica' rather than 'continue to send them to a place there is so much reason to be convinced would be the destruction of many who might otherwise be recovered of their diseases and hurts, and afterwards do good service to their King and their country.'³⁰

The Admiralty neglected to respond to the Board regarding the entire matter.

In May 1748, Rear Admiral Knowles, the new commander-in-chief at Jamaica, wrote to the Admiralty complaining about the state of patients at New Greenwich hospital. In his letter Knowles boldly asserted that one-sixth of the money spent erecting and maintaining the hospital should have been spent on a facility at Port Royal which would have been 'more commodious, more healthful and securer for the men.'³¹ The Sick and Hurt Board agreed with Knowles, but the Admiralty was not inclined to spend money to rectify the unhealthy situation.

It appears that no further complaints were made to either the Admiralty or the Sick and Hurt Board until October 1755 when Commodore Coles sent a letter to the Sick and Hurt Board advising of the distress at the hospital. His observations mirrored those of his predecessors; the unhealthy nature of the place was due to its proximity to stagnant water. He wrote:

I perfectly agree...in opinion that many a good seamen has been lost, and more will be lost by being sent to that hospital, not for want of care or attendance, but purely from the unhealthiness of the situation; since I

²⁹ NMM, ADM/E/12, Captain Mitchell to Admiralty, 16 April 1747.

³⁰ NMM, ADM/F/9, Sick and Hurt to Admiralty, 17 April 1747.

³¹ NMM, ADM/E/12, Rear Admiral Knowles to Admiralty, 6 July 1748.

have commanded here, I have discharged at least 12 strong healthy men for watchmen to the King's stores at Greenwich, and not one of them have ever lived eight months, and although there is at the victualling office one of the best houses in the island, yet no agent or clerk can be prevailed on to live there, so bad an opinion prevails against the place...hiring quarters at Port Royal would certainly be of advantage to the men...It certainly is by much the healthiest spot on this island, a proof of that is, that the inhabitants of Kingston and Spanish Town all go there to recover after a fit of sickness and the people of the town are seldom sick. The only disadvantage it lays under is being much exposed in case of a hurricane or earthquake; if a small convenient hospital had been originally built there, it would not only have saved many men's lives, but a considerable sum to the government.³²

By the following month, Coles was forced to write again, this time to report the death of the surgeon, Mr Gascoigne, who was 'the fifth surgeon who died there within a few months.'³³ This report from Coles proved the breaking point for the Admiralty. They instructed Rear Admiral Townshend, who was en route to take command of the Jamaica station, to consult with Coles to determine the best course of action for relocating the hospital to a more conducive location.³⁴ Townshend and Coles wasted little time and by July 1756, they submitted a proposal to the Sick and Hurt Board for erecting a new hospital at Port Royal along with a plan for the facility. The Board made minor alterations and resubmitted the plan to the Admiralty in August requesting that orders be given immediately to commence building (Figure 6.2). Additionally, they suggested that since the hospital at New Greenwich was so sickly, three vessels should be purchased at Jamaica and stationed at Port Royal to be fitted out for the temporary use of the sick and wounded. An order was subsequently given by the Admiralty to purchase the three ships as well as an order for the Navy Board to purchase land and build the hospital at Port Royal. The building at New Greenwich was ordered to be sold once it had been stripped of any materials that could be used at Port Royal.³⁵

³² NMM, ADM/F/12, Commodore Coles to Sick and Hurt, 22 December 1755.

³³ NMM, ADM/F/12, Commodore Coles to Sick and Hurt, 22 January 1756.

³⁴ NMM, ADM/E/15, Admiralty to Sick and Hurt, 28 January 1756.

³⁵ NMM, ADM/E/16, Admiralty to Sick and Hurt, 11 August 1756. NMM, ADM/E/16, Admiralty to Sick and Hurt, 18 August 1756.

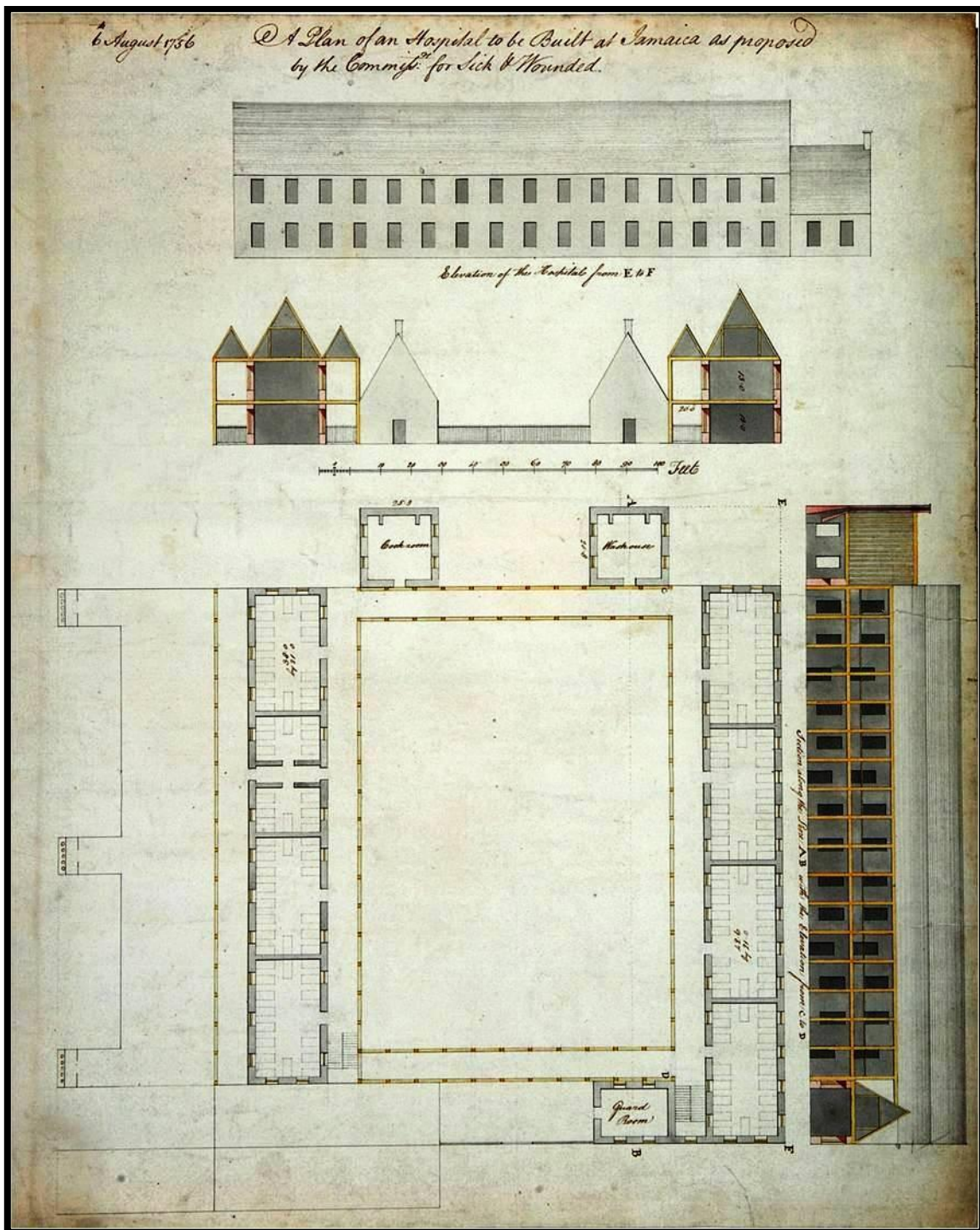


Figure 6.2 – Sick and Hurt Board Plan for Port Royal Hospital, August 1756³⁶

After nearly fifteen years of complaining from surgeons and admirals on the Jamaica station, a second naval hospital at Port Royal was erected. Records do not exist to attest to the exact number of men who were lost due to the disastrous location of the New Greenwich hospital, although it is safe to estimate that Hume's figures from 1744 of a roughly 30 per cent death rate would have carried on for the remainder of the time the

³⁶ AL, Portfolio B40, Sick and Hurt plan for Port Royal Hospital, 6 August 1756.

hospital stayed operational and the number of men invalided would have likely averaged around 15 per cent.

Incidents of mortality dropped with the hospitals relocation to Port Royal. Once the care of men became more straightforward, the attention shifted to the practices of agents supplying the hospital with its necessaries. Messieurs Meyler, Hall & Torry were the first agents appointed to the new hospital at Port Royal. Within a very brief time period they angered Rear Admiral Holmes who wrote to the Admiralty to complain. Holmes detested the agents, noting they had ‘most effectually rendered themselves completely unworthy of the least notice or regard from me’ and that he would not ‘have the least connection or intercourse with them.’³⁷ In 1761, he requested that both the Sick and Hurt Board and the Victualling Board cancel their contracts with the agent and suitable replacements found right away. Holmes’s chief complaint was that they refused to submit weekly abstracts which would provide a ‘cheque upon the agents and pursers’ in order for him to ‘remedy two evils that are of the greatest hurt to the seamen, that is bad bread and bad rum.’³⁸

Among Holmes’s numerous complaints was a suggestion that the victuals were substandard. He said:

the seamen have been obliged to live upon bad bread at sea, or the ships must have broke off their cruises long before the time appointed and long before the four months were expired for which that bread is warranted. The bad bread being in this manner expended from necessity, no room was left for the survey on the return of the ship into port; or at most a very small part remained to be surveyed; and even that was saved by the Agents gladly taking it into store and giving good bread in his room. By this means few surveys have gone home, and the ships have been thought to be always well supplied. A suspicion that this might [not] be the case and a desire to remedy it induced me to order in weekly abstracts from whence I could see all the different augmentations of bread and flour that were brought into the stores, and the exact expense of the same, in the weekly supplies made to the squadron; from both which I could be able to judge, from the time the supplies of real good bread and flour were made by the importation of the same into this country by the contractors, to the time of warranty, when it might be expected not to be serviceable for the length of cruise. And by this means, I should have been able to fix the badness of the bread upon the ill supplies of the contractors, or the ill management or foul play of the agents.³⁹

³⁷ NMM, ADM/E/34, Rear Admiral Holmes to Admiralty, 27 October 1761.

³⁸ Ibid.

³⁹ Ibid.

When it came to rum, Holmes had a similar distrust of the agents. New rum was more potent and it was cheaper. He believed the contractors were distributing it rather than rum which was much older and not as strong. He claimed that distributing rum ‘less than three months old is the same as using poison and destroys the seamen with fluxes and other disorders.’ His solution was for the contractors ‘to buy such quantities of new rum as at least, may be able to supply the squadron for three months of the following year with old rum, whilst the new continues to be noxious.’ Holmes claimed that the agents had older rum in stock which should have been used for benefit of men in hospital, however he indicated they were selling off the older rum to the highest bidder and supplementing it with new rum which was given to seamen. If the agents had been ordered to submit weekly abstracts, Holmes claimed he could:

have seen the stock in hand, and by calculating the consumption of the squadron I should both have known, whether the stores were opened to any other purpose than that of serving His Majesty’s ships; and in case of a deficiency, I should have had the opportunity of giving the agents timely notice and directions to prepare a proper stock of the old, against the season of the new rum. By this means I would have effectually prevented the squadron from being ever ill served in that article.⁴⁰

In the Sick and Hurt Board’s opinion, they were not a fit body to pass judgement on the practices of the contractors and instead it was an issue for the Victualling Board. Moreover, the commissioners felt that Holmes had overstepped a line by requesting that the contractors become accountable to him, rather than to their Board or the Victualling Board who signed the original contract for the supplies.⁴¹ Before the Admiralty had a chance to determine the best course of action with the agents, the Seven Years War came to an end and the decision was made to reduce the service at several foreign stations including Jamaica. The total number of men proposed to be stationed at Jamaica during peacetime was estimated at 1,545 and therefore supplies required from contractors and agents reduced significantly.⁴² Seeing as there would be so few men at Jamaica, the Admiralty felt the current agents were sufficiently capable of handling the duties and allowed them to continue.

A new surgeon, George Kinghorn, was appointed to the hospital during this time of reduced service and it was not long before he was investigated for his poor conduct. In a report to the commissioners from Sir William Burnaby it was claimed that Kinghorn was failing in a number of areas which was severely affecting the health of the men ashore. The

⁴⁰ NMM, ADM/E/34, Rear Admiral Holmes to Admiralty, 27 October 1761.

⁴¹ NMM, ADM/F/22, Sick and Hurt to Admiralty, 3 November 1761.

⁴² NMM, ADM/E/38, Admiralty to Sick and Hurt, 28 November 1763.

biggest complaints were that patients did not receive their dinner until 5 or 6 o'clock in the evening, the wine they were served was generally weak and unfit, several of the men had been kept on the hospital books after they had deserted or died and lastly that the sick had gone without necessary medicines for days through the lack of attention by Kinghorn and his assistants.⁴³ These issues troubled both the Admiralty and the Sick and Hurt Board. Not only was Kinghorn failing to tend to the men properly, but he was also misreporting their status for his own financial gain. Kinghorn was immediately dismissed and replaced by Robert Wood, a dedicated surgeon who remained at Jamaica hospital for the next thirty years.⁴⁴

Natural disaster was the next issue to affect Port Royal hospital. In September 1771, a minor earthquake struck Jamaica and caused a great deal of damage to the building. The island was no stranger to earthquakes which struck frequently, but according to Rear Admiral Sir George Rodney, this most recent one was the worst that had hit Jamaica since the great one in 1692. Wood reported to Rodney that the hospital building suffered significant damage and described it in detail:

...the chimneys of both cookrooms and washhouse are shook down, and the walls from top to bottom much shattered, the partition walls dividing the several wards are much rent, and the gavel end of the northernmost wing, and a southern wall next to the dispensary greatly damaged.⁴⁵

Rodney was concerned about the state of the men who were inside the building during the earthquake. He claimed those men were 'so terrified that such as were able to crawl out could not be induced to go within the walls that night, nor was it without reason as their situation was dangerous.'⁴⁶ Not wishing to wait a few months for his correspondence to reach the Admiralty, Rodney authorised the repair of the damages as cheaply as possible 'consistent with the good of the service and safety of the patients belonging to the hospital.'⁴⁷

During the American War of Independence, the correspondence to both the Admiralty and the Sick and Hurt Board appear to have been minimal and mainly concerned minor building repairs. Following the conclusion of the war, hospital service was decreased due

⁴³ NMM, ADM/E/39, Admiralty to Sick and Hurt, 5 July 1764.

⁴⁴ The fact that Robert Wood was able to serve at Port Royal hospital for so long is testament to how improved health was at the relocated hospital. The hospital at New Greenwich went through at least half dozen surgeons in a year, all of which were lost to disease. Robert Wood was a dedicated surgeon who provided stability in an often dangerous tropical climate.

⁴⁵ TNA, ADM 97/86, Admiral Rodney to Sick and Hurt, 19 September 1771.

⁴⁶ Ibid.

⁴⁷ Ibid.

to the reduced number of men on the station.⁴⁸ Rear Admiral Rowley, the commander-in-chief on the Jamaica station, proposed that some major works be carried out on the hospital while there was a reduction in service and instructed the naval surveyor, Nathaniel Watts, to make a survey of the buildings in their present condition. It had been nearly thirty years since the hospital at Port Royal had been built and during that period it had resisted at least three minor earthquakes and undergone only minimal maintenance. In Watt's report he outlined the necessary repairs which were necessary:

The roof of the dispensary [is] so much decayed as to require the greatest part being new shingled. The gutter between the dispensary and the wards adjoining is decayed and very leaky to the great damage of the walls, requires being new planked and laid with lead. The steward's room and many places in the wards...are in need of new plastering and every part throughout the whole, scraping and whitewashing...Many of the windows require new hanging and bottom stiles and the shutters new hinges...The piazzas and balconies on three sides of the wards and the galleries of communication are in many parts decayed and defective viz. the northmost gallery of communication next [to] the kitchen and the washhouse is very much inclined towards the court owing to the ground sills and lower part of the columns being decayed...⁴⁹

Watts estimated the total amount needed to carry out the works was £1,811-13s-8½d, which would ensure the hospital was sound enough for a number of years. The Admiralty was not entirely prepared to spend such a large sum of money on a hospital servicing a squadron made up of less than 1,500 men. For once, the delay in the Admiralty's response to authorise repairs to the hospital proved a savings to the Crown. While waiting for the Admiralty to approve the works, a devastating hurricane hit Jamaica on the 31 July 1784. So severe was the storm that most of the vessels in the harbour either lost their masts or were driven ashore with the loss of many lives. Before the island was able to recover, it was once again devastated when another hurricane struck, this time on the 27 August 1785. This second hurricane was stronger than the previous one, it lasted longer and caused a greater degree of damage. Following the second hurricane, the hospital was truly in desperate need of repairs. The surgeon, Robert Wood, forwarded an estimate of the necessary repair work which amounted to £2,734-15s-7d.⁵⁰ When the estimate arrived in London, the Admiralty authorised all proposed repairs as they appreciated the hospital had suffered a great deal of damage along with routine wear and tear.

⁴⁸ NMM, ADM/E/43, Admiralty to Sick and Hurt, 18 August 1783. The number of men proposed to serve on the Jamaica station during peacetime was 1,480.

⁴⁹ NMM, ADM/E/43, Nathaniel Watts to Rear Admiral Rawley, 22 October 1783.

⁵⁰ NMM, ADM/E/44a, Admiralty to Sick and Hurt, 13 December 1785.

Improvement work at the hospital did not end there. In January 1796 Rear Admiral Parker, the commander-in-chief, requested a wall be erected around the hospital to help prevent desertion. In his letter he justified the building of the wall:

It is a known fact from the very high wages given to seamen that whenever a man is tolerably recovered at the hospital even before the surgeon considers him in a state of convalescence if he is not taken on board his ship he certainly runs away, this occasions frequent relapses from which many never recover and the loss of more seamen by death than would otherwise be the case, but from this necessity. As I am thoroughly sensible its out of the power of the surgeon and his assistants to prevent desertion under the present circumstances of the hospital but which is very possible to remedy by building a wall along the shore from the side walls of the hospital to completely enclose its territory, desertion may be altogether prevented.⁵¹

To further validate his point, he continued to rationalise the need for the wall and how it would deter the men from running:

At present a boat may land upon the shore of the hospital yard in open day and take men off as there are always many there under the plea of the necessary or other pretence. The idea hitherto to prevent desertion has been the running the side wall into the sea so far as to prevent men wading round; [or] by running a wall along the shore from one side wall of the hospital to the other about five feet high with iron railing over that the circulation of air so essential to health in this country may not be prevented and which I am confident is the only means to prevent desertion.⁵²

Desertion was not the only evil Parker thought the wall would thwart. He claimed that by building the wall around the perimeter, the surgeon would also be able to control the influx of rum. It appeared to Parker that rum was frequently got into the wards due to low windows and the lack of guards to monitor the facility. It only took three days for the Admiralty to approve the request and to order the commissioners to move ahead with the project without delay.⁵³ Their willingness to approve the erection of the hospital wall was driven by the need to convalesce men and return them to service as the French Revolution was raging in Europe and it was imperative for England to defend her valuable West Indian colonies from the French forces. They considered the hospital integral to the navy's operations in the West Indies, and before the end of the century, upwards of 8,000 men were sent to the hospital at some point for treatment, the majority of whom were returned to service.

⁵¹ NMM, ADM/F/26, Rear Admiral Parker to Sick and Hurt, 2 January 1796.

⁵² Ibid.

⁵³ NMM, ADM/E/45, Admiralty to Sick and Hurt, 7 January 1796.

Hospital muster books were returned to the Admiralty on a quarterly basis. Unfortunately musters that cover the majority of the eighteenth century at Port Royal hospital have not been retained. They do exist from the Ladyday quarter 1793 to 1806 (the end of the survey period) and beyond. Using the muster books and the Admiralty list books it is possible to compare the number of men recorded as part of the ships' complement on the Jamaica station for each year with the number sent to Port Royal hospital (Table 6.2). Also from these musters it is possible to get an accurate representation of the diseases they suffered from and ascertain their ultimate fate. A number of significant patterns and trends can be determined through the manipulation of the data. Not surprisingly, the most frequent ailment suffered by seamen on that tropical station was fever (Table 6.3).

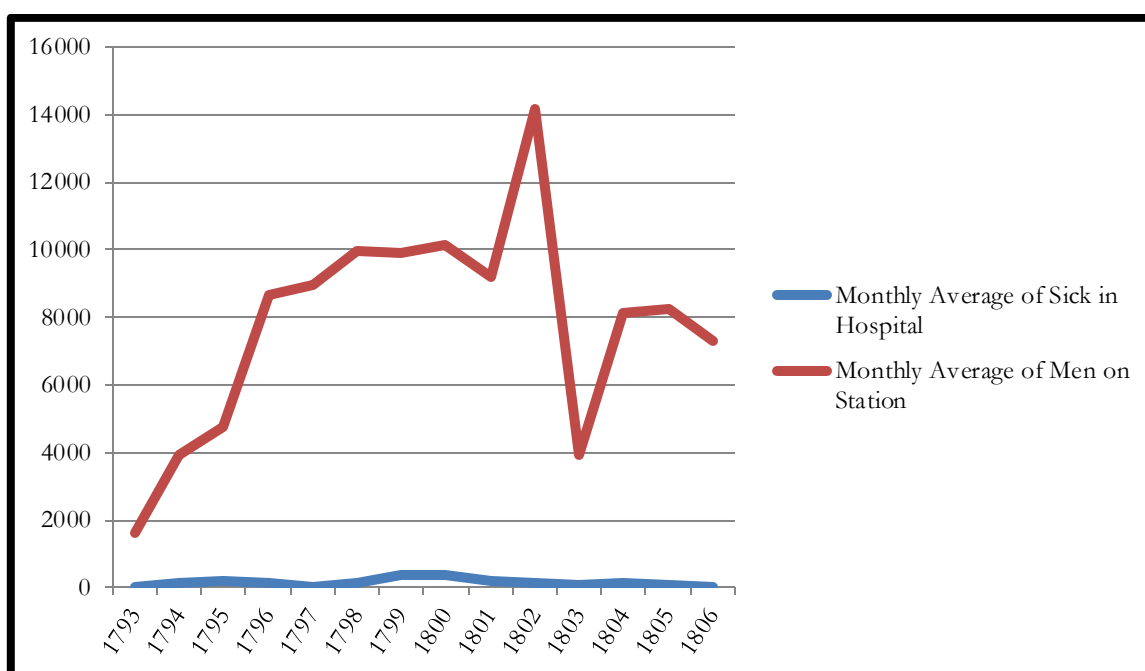


Table 6.2 – Comparison of Average Number of Men Sent to Port Royal Hospital versus the Average Number of Men on Station, 1793-1806⁵⁴

⁵⁴ TNA, ADM 102/426, ADM 102/427, ADM 102/428, ADM 102/429, ADM 102/430, ADM 102/431, ADM 102/432, ADM 102/433 Jamaica Hospital Muster Books. In 1793, the Muster books for the first two quarters of the year were submitted as routine; however the second half of the year was lumped into one large submission with 1794. In 1800, only two quarters were submitted with descriptions and therefore only that information was used for the percentages. In 1801, there was only one quarter which held detailed information and therefore that is what the percentages are based on.

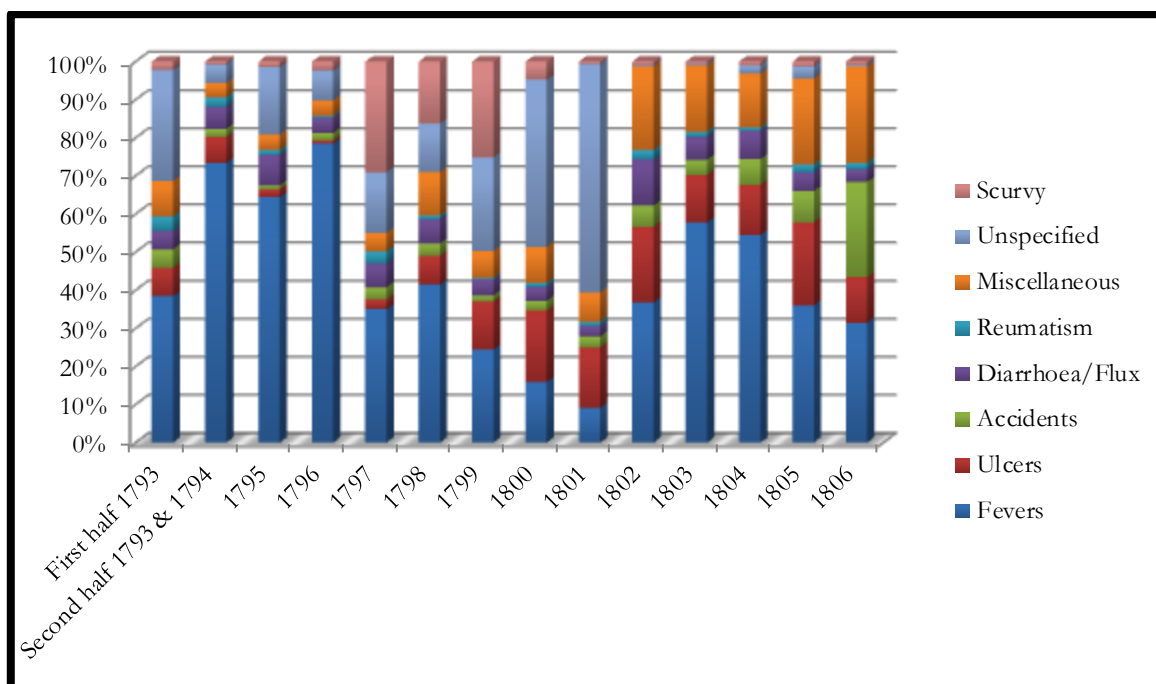


Table 6.3 – Breakdown of Diseases Afflicting Men at Port Royal Hospital, 1793-1806⁵⁵

The documented outbreak of fevers in the West Indies from 1793 to 1798 is clearly seen from the data extracted from the hospital musters which significantly reduced once the outbreak ended. Regrettably the recordkeeping in the 1800 and 1801 muster books was not as meticulous and most entries were catalogued with an ‘unspecified’ disease. Data concerning the fate of seamen sent to the hospital can also be extracted from the muster books. When fevers were raging at Jamaica, a considerable percentage of men died from the disease, but when fevers abated, the majority of men were discharged back to service (Table 6.4). A large percentage of men died during those key years, particularly in 1796 when the mortality rate was 35.5 per cent. In the healthier year of 1800, when only 15.7 per cent of seamen were sent to the hospital suffering from fevers, the mortality rate was only 12.9 percent. The number of invalids in 1802 is somewhat misleading. While there was a break in fighting during that year, the surgeon at Jamaica took the opportunity to send a large number of invalids back to England, the majority of which had ‘remained’ in hospital from the previous year. That high proportion of invalids distorts the figures for the year, when in fact the majority of seamen that were sent to the hospital that year were discharged back to service.

⁵⁵ TNA, ADM 102/426, ADM 102/427, ADM 102/428, ADM 102/429, ADM 102/430, ADM 102/431, ADM 102/432, ADM 102/433 Jamaica Hospital Muster Books.

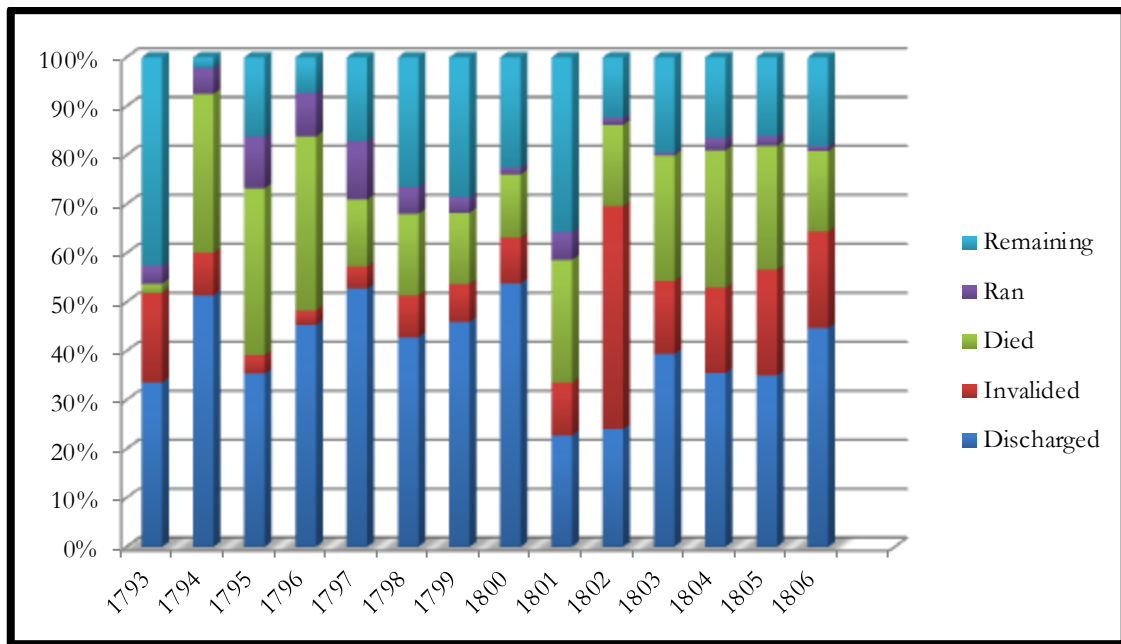


Table 6.4 – Percentage of Men Discharged, Invalided, Dead, Run & Remaining at Port Royal Hospital, 1793-1806⁵⁶

Overall, the Admiralty’s attention to the erection of a naval hospital at Jamaica significantly contributed to the health of men stationed there. Although many men lost their lives when the first hospital was erected at New Greenwich, it was an unforeseeable situation. Since the medical understanding was not comprehensive enough to realise the implications of putting so many men within the vicinity of stagnant water and malaria-carrying mosquitoes. Reasons for the high level of illness were blamed on temperature fluctuations and the lack of proper ventilation. Once the naval hospital was relocated to Port Royal, incidences of deadly fevers subsided and the surgeon was able to carry on the business of caring for men until they were well enough to return to service. The hospital served the Jamaica fleet well into the French Revolution and beyond. Hospital musters prove integral to understanding the types of diseases most affecting the squadron and from these musters it is possible to determine what happened to each man after he was admitted. The majority of men returned to service while a smaller percentage died or were invalided. There can be little doubt that the purpose-built hospital at Port Royal played a strategic role in making those statistics possible.

Barbados

The island of Barbados had been under the control of the English government since 1627 (Figure 6.3). It was considered part of the Leeward Islands station with naval ships sailing regularly between it and Antigua. In terms of contracting for the care of seamen on that

⁵⁶ Data was collected from the same sources as footnote 55.

island, it was frequently the case that the contractor for Antigua was also responsible for Barbados. From as early as the 1740s, that contract was held by Henry Lascelles, a merchant of London. According to his contract he was ordered to provide an able surgeon as well as providing:

[sick] quarters, fresh beef, mutton broth or any other necessary provisions as shall be thought by the surgeon or doctor convenient for them, and that each man shall be allowed one pound of good wholesome bread, one pound of good and wholesome fresh meat, and one pint of good and sound Madeira wine, or in lieu thereof, one pint of punch, to those whom the doctor or surgeon shall judge proper, with butter according to the custom of the navy. And those so weak as meat shall not be judged fit for, are to have rice, eggs, cheese or any other provision, in such proportion as shall be sufficient for their maintenance, as the doctor or surgeon shall prescribe.⁵⁷

Aside from victuals, Lascelles was also contracted to supply other necessities which included fire, water, candles, platters, spoons and soap, and the expense of washing...also [a] proper person that can speak English as [a] nurse to attend them, during the time of their being in the hospital.⁵⁸ For his service, Lascelles was paid 13s-4d for the cure of each man, and 2s-2d per man per day for provisions and necessities. An extra allowance of 1s was offered for the first twenty days that a man entered his care suffering from small pox. Finally, Lascelles was offered 10s to cover funeral expenses for men that died in the hospital.

At that time, using the contractor system at Barbados made the most sense to the Admiralty. The total number of men ordered for service on that island was not nearly as high as Jamaica, so the outlay of money to build a permanent hospital was not practical. By using this system, the Admiralty knew they were in a favourable situation. The main burden fell on Lascelles, for he was the one who was required to make contracts with locals for all provisions and necessities as well as arranging for staff to attend the sick. Once the contract with Lascelles was signed, the Admiralty's only duty was to verify his submitted invoices and pay for services rendered. And since the price was agreed with the contractor, the Crown was not stuck with an exorbitant bill for unforeseen expenses; the extra costs, if there were any, were the responsibility of Lascelles.

⁵⁷ NMM, ADM/F/8, Sick and Hurt to Admiralty, 16 May 1746.

⁵⁸ A copy of a contract made between the Sick and Hurt Board and Henry Lascelles dated 1744 is located in Appendix 7.

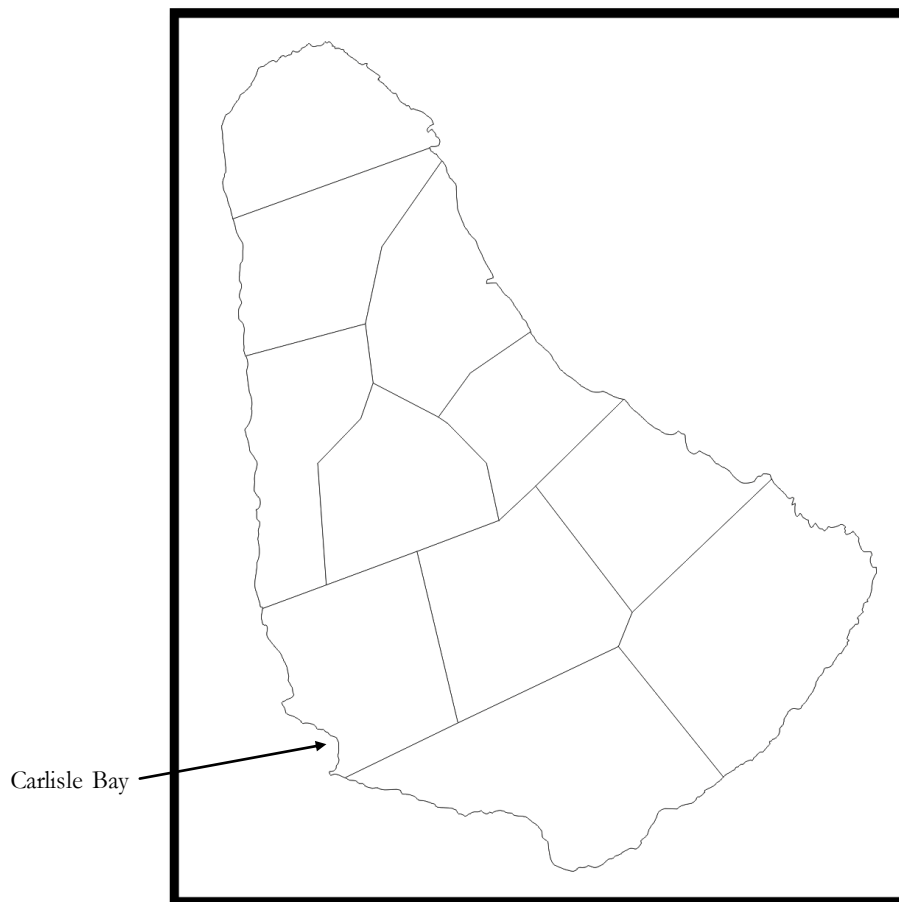


Figure 6.3 – Map of Barbados

Complaints about the level of service Lascelles's provided were made to the Sick and Hurt Board by the commanding officers at Barbados. They claimed he was not supplying a number of items which he was contracted to do which was adversely affecting the care of men on shore. Lascelles had a set of complaints of his own. The majority of his grievances were a result of the fluctuating costs of provisions and necessaries, especially during war time when prices escalated. This fluctuation in price affected the quality and amount of provisions the sick at Barbados received, which, in turn, caused the complaints from the officers on station. By September 1761, the commissioners had heard enough from both parties and concluded that changes to the contractor system were necessary. They wrote a letter to the Admiralty proposing that surgeons and dispensers be supplied by the navy rather than the contractor at both Barbados and Antigua. By appointing their own surgeons and dispensers, the Sick and Hurt Board ensured an approved naval surgeon with knowledge of diseases regularly suffered by seamen took responsibility for the sick on shore. The Board proposed that the navy-appointed surgeons and dispensers should be paid a fixed salary of £250 and £120 per annum respectively rather than per man per cure.⁵⁹ The Board also requested that a permanent hospital be built at Barbados as they

⁵⁹ NMM, ADM/F/22, Sick and Hurt to Admiralty, 3 September 1761.

realised the newly-opened one at Port Royal proved very effective. The Admiralty's reply authorised the sending out of a surgeon and dispenser to the island as proposed; however their letter contained no mention of erecting a hospital indicating they were not prepared to discuss such a vast financial undertaking.⁶⁰

In November 1761, Edward Clark was named as the first navy-appointed surgeon at Barbados and Robert Smith was appointed the dispenser.⁶¹ They were sent out to Barbados the following month and arrived in early 1762.⁶² It was not long after their arrival that the Seven Year's War came to an end and the Sick and Hurt Board proposed a reduction in foreign hospital service. The Board believed there was a need for an establishment in Barbados; however they realised the number of men on the station would drastically decrease. On those grounds, they reduced the surgeon's salary to £150, but maintained the dispenser's salary at £120.⁶³ Barbados was not the principal island on the Leeward Islands station: Antigua served that purpose since the navy had established a dockyard there some years past. Antigua also had a hospital (although not a permanent one like Jamaica) and in 1773 it was determined that due to the small number of men serving in the Leeward Island squadron, they no longer required a hospital and surgeon in Barbados.⁶⁴ A survey was made by the Board to calculate both the number of men ashore from the time the service was reduced in 1764 until 1773 (Table 6.5).

Year	Total Expense	Number of Men received on Shore
1764	£280/14s/3d	465
1765	£279/13s/3d	96
1766	£280/5s/4d	135
1767	£280/5s/4d	123
1768	£280/5s/4d	93
1769	£280/5s/4d	116
1770	£280/5s/4d	46
1771	£280/5s/4d	52
1772	£160/5s/4d	49
1773	£160/5s/4d	14

Table 6.5 – Number of Sick Men Sent Ashore at Barbados, 1764-1773⁶⁵

Initially the hospital remained effective, treating nearly 500 patients the year service was reduced. In 1770, the number of men sent ashore reduced by over half of what it had been in the preceding five years, a pattern which continued for the next two years. Before the

⁶⁰ NMM, ADM/E/34, Admiralty to Sick and Hurt, 1 October 1761.

⁶¹ NMM, ADM/E/34, Admiralty to Sick and Hurt, 27 November 1761.

⁶² NMM, ADM/F/22, Sick and Hurt to Admiralty, 17 December 1761.

⁶³ NMM, ADM/F/24, Sick and Hurt to Admiralty, 25 May 1763.

⁶⁴ NMM, ADM/E/39, Admiralty to Sick and Hurt, 9 May 1764. The total number of men proposed to be on the Leeward Islands station was 1,105.

⁶⁵ TNA, ADM 98/10, Sick and Hurt to Admiralty, 13 September 1774.

Admiralty spent any more money to maintain the hospital, the decision was made to close it in 1773.⁶⁶

It was not long before England was once again at war, this time with the rebellious American colonies. When France entered the war on the American side, England's strategy for victory shifted southward. The English planned to attack the lucrative island of St Lucia in the southern West Indies to deliver a severe blow to the French forces. Barbados was the most obvious choice to serve as a base and when Admiral Barrington arrived there in July 1778 to carry out his orders to attack St Lucia, he was annoyed to discover that the naval hospital there had been closed five years prior.⁶⁷ He wrote to the Sick and Hurt Board to detail the troubles he met with upon his arrival. The seamen from the *Prince of Wales* were very sickly and Barrington was forced to send them ashore and establish a hospital for their recovery. The Board advised Barrington to only rent sick quarters as needed and not to contract with anyone to manage a hospital.⁶⁸ Before he received the letter, Barrington had already contracted with merchants on the island for them to provide a hospital or sufficient sick quarters with bedding for 100 patients and to perform the victualling. Additionally he had employed a surgeon, who was a resident of the island, to attend the sick and so the system continued until Barrington was recalled to England in 1779.⁶⁹

Barrington was relieved on the Leeward Islands station by Admiral Sir George Rodney. Rodney was no stranger to the West Indies; he previously served as the commander-in-chief of the Jamaica station from 1771 to 1774. Accompanying him on this appointment was Gilbert Blane, a young man who attended Rodney as his personal physician. Rodney quickly realised Blane was an extremely talented and diligent doctor and appointed him Physician of the Fleet. Together, both men worked toward raising the level of health by examining the system of caring for men onshore. Realising it was an enormous task, Rodney wrote to the Sick and Hurt Board requesting that a representative from their Board be permanently located in the Leeward Islands. Rodney felt that:

...the magnitude of the squadron in the West Indies above what it has been in former wars has necessarily rendered the business of the commander-in-chief more complex and the powers with which I have the honour to be vested throws upon me in a great measure the management of all the different departments: the business of the yards is

⁶⁶ Alan G. Jamieson, 'War in the Leeward Islands: 1775-1783' (PhD dissertation, University of Oxford, 1981), p. 75.

⁶⁷ TNA, ADM 1/310, Rear Admiral Barrington to Admiralty, 13 July 1778.

⁶⁸ TNA, ADM 98/12, Sick and Hurt to Admiralty, 20 March 1780.

⁶⁹ Ibid.

indeed managed by a commissioner and the subordinate officers, but there is another department equally important in that unhealthy climate namely that of the sick and wounded. In this there are not suitable appointments made and my time and attention being employed in the other arrangements also of so great a fleet as well as the general objects of war, I had no leisure to manage and settle the particulars referred to me. A want of order therefore unavoidably took place in the management and accommodation of the sick to which I cannot but ascribe in part the mortality that prevailed. In order to remedy this, I beg you will request their Lordships that some person be appointed to this department with the powers of a commissioner.⁷⁰

His request for a commissioner to be appointed to the Leeward Island station was denied. Both he and Blane realised that they were going to have to work extremely hard to keep the squadron healthy without much support from the Board. One of their first orders to maintain health was the distribution of additional rations of fresh fruit. Despite not understanding the nutritional value of why fresh fruits proved beneficial, they understood enough of their good effects to know they kept seamen healthy. Aside from providing additional rations of fresh food, the pair championed the use of Peruvian Bark, alkaline salt, lemons and oranges to provide relief for men suffering from ‘the fatal diseases of the climate of the West Indies.’⁷¹

Rodney also sent a report to the Sick and Hurt Board attesting to the state of the facilities at various locations on the Leeward Island station. In the letter he highlighted the lack of attention shown by the Board to the medical services in that region and once again requested a permanent commissioner to be placed there to regulate and stabilise the service.⁷² At Barbados, specifically, Rodney recounted the troubles Barrington faced upon his arrival at the island with no established hospital combined with a large number of sick seamen. According to Rodney, Barrington’s hospital contract which established a hospital for 100 men was not adequate enough and cited the number of sick men on shore at Barbados at particular times was between 500 and 600 men. Following his complaint to the Sick and Hurt Board about the state of facilities, Rodney was forced to write once again to the Board advising of damage to the hospital at Barbados caused by the Great Hurricane of 1780.⁷³ He claimed the hospital had been destroyed and it was not ‘possible to

⁷⁰ NMM, ADM/E/43, Admiralty to Sick and Hurt, 4 December 1781.

⁷¹ NMM, ADM/E/43, Admiralty to Sick and Hurt, 10 December 1781.

⁷² TNA, ADM 98/14, Sick and Hurt to Admiralty, 10 December 1781.

⁷³ The Great Hurricane of 1780 ravaged the islands of Barbados, St Lucia, and Martinique in the early part of October. This particular storm is considered particularly severe, killing approximately 20,000. Rodney had a fleet of 12 warships patrolling the Leeward Islands station when the hurricane approached. The ships were no match for the storm and eight sank in St. Lucia harbour, killing hundreds of sailors. There were even reports that bark was stripped from trees in some locations. Generally, this only occurs if winds are in excess of 200 miles per hour. The French fared no better, losing an estimated 40 ships and 4,000 soldiers. Martinique and Barbados had the highest casualty rates: The best estimation is that upwards of 9,000 people

accommodate on shore one half of the sick in the fleet.’ He therefore, ‘ordered milk and vegetables to be supplied for the sick on board and...it had produced a good effect.’⁷⁴ The surgeon was eventually able to secure the use of a house capable of accommodating 400 sick men and there was no immediate need for the navy to erect a permanent structure.⁷⁵

It appears that the house rented for use as sick quarters fully answered the needs of the sick as well as providing housing for the officers. Sir Samuel Hood, the commander-in-chief at Barbados in 1782 (in Rodney’s absence) submitted a request to erect a wall around the hospital with a guardhouse at the entrance. Additionally he requested a hospital ship to be stationed in the bay. The surgeon of Barbados hospital, Mr Crawford, was on leave in England and was asked to attend the Sick and Hurt Board to discuss Hood’s proposals. Crawford believed that the total cost to erect a wall around the hospital required an outlay of £1,200 local currency, but he indicated that the contract with the supplier of the hospital was coming up for renewal and he felt that half the expense to erect the wall could be made a condition of the new contract.⁷⁶ The commissioners were happy to agree for the wall to become the partial responsibility of the contractor, feeling that any savings to government were welcomed. They did have a concern over the placement of a hospital ship at Barbados in addition to the hospital. Instead of a hospital ship, the Board suggested that a convalescent ship be anchored in Carlisle Bay. A convalescent ship would be more advantageous because it was akin to a ‘ward in the hospital...as the seamen can more easily be prevented from drunkenness and debauchery of all sorts; and they will enjoy a cooler and more refreshing air than on shore.’⁷⁷ They instructed that ‘recovering patients from the hospital only are to be sent on board the convalescent ships as soon as they can with safety lay in a hammock, and no men are to be immediately sent thither from the King’s ships.’

By 1787 the wall had been erected around the hired hospital, however the surgeon felt the situation was still inadequate. He requested the Admiralty to purchase the hired quarters so the facility could become a permanent naval fixture. The Admiralty considered the request and ordered the Sick and Hurt Board to investigate the merit of the idea in greater detail.⁷⁸ The commissioners were not keen on the surgeon and suggested he was ‘not an officer in whom we ever had much confidence and he has always endeavoured to introduce expenses

perished in Martinique from a huge storm surge and in Barbados some 4,000 people died. <http://www.history.com/this-day-in-history.do?action=Article&id=51598>. [last accessed 25 January 2009].

⁷⁴ TNA, ADM 98/14, Sick and Hurt to Admiralty, 10 December 1781.

⁷⁵ Ibid.

⁷⁶ TNA, ADM 98/14, Sick and Hurt to Admiralty, 18 January 1782.

⁷⁷ Ibid.

⁷⁸ TNA, ADM 98/15, Sick and Hurt to Admiralty, 4 May 1787.

not really necessary.’ They also believed he had misrepresented the state of the sick on shore at Barbados and that his proposal to purchase this hospital would somehow benefit him financially. As a result of this distrust, the Board wrote to Commodore Parker on the Leeward Islands station ordering him to supersede the surgeon and to find a suitable replacement who did not believe it was necessary for the Admiralty to spend money unnecessarily to purchase the rented hospital.⁷⁹

Not having a replacement to hand, Parker was forced to advertise. Since it was peace time, the Admiralty was not prepared to pay a set salary for a surgeon; instead they offered the rate of 13s-4d per man per cure. According to the previous quarter’s return, only two men were sent on shore and if things carried on that way, any surgeon taking up the post would earn next to nothing. Parker advertised the position for three weeks and had no response.⁸⁰ Realising that no interest would come from further advertisement, he advised that unless some salary be provided in peacetime, the hospital was pointless because:

men capable of moving about if inclined to liquor had better be on board their ships than [ashore]; therefore with so small a peace establishment under these circumstances I think it may drop altogether, as I am aware it will be great saving to government...the [hospital] at present occupied [is] in a state of tumbling down, beside being open to every species of vice and drunkenness, [resulting in] the loss of the men to the service and their country instead of being restored to health.⁸¹

The Admiralty refused to provide a salary for a surgeon at Barbados and in lieu of locating an appropriate person, Parker was forced to use the ships’ surgeons to attend men ashore at the hospital.⁸² While the hospital remained open during peacetime, it operated on a much-reduced service. Within a few years, the island once again became vital with the outbreak of the French Revolution. Although the West Indies did not feature too prominently during the war, England sent out a large number of men to protect her colonial interests and trade. In 1802, with a break in the fighting, the Admiralty made the decision to close the hospital at Barbados and all excess stores were sent to the hospital at Antigua.

War was never out of sight and only one year later, a surgeon had to be appointed at Barbados to handle the number of sick sent ashore. Until someone could be found for that role, John Lucie Smith, the man in charge of caring for sick prisoners of war at that

⁷⁹ Ibid. NMM, ADM/E/44a, Admiralty to Sick and Hurt, 18 June 1787.

⁸⁰ NMM, ADM/FP/31, Commodore Parker to Sick and Hurt, 22 April 1788.

⁸¹ Ibid.

⁸² NMM, ADM/E/44a, Admiralty to Sick and Hurt, 16 July 1788.

island, hired a house for the sick men and procured necessaries such as beds, bedding, flannel clothing and hospital utensils. In addition he hired a dispenser, a clerk and nurses to attend the sick.⁸³ By the end of 1803, George Vance, surgeon of the *Theseus*, was appointed the surgeon at a salary of £300 per annum.⁸⁴

For the remainder of the study period the hospital at Barbados remained busy, housing anywhere between 100 and 300 sick men per quarter (see Table 6.6). Fully aware of the benefits of having permanent naval hospitals established both at home and abroad, the Sick and Hurt Board wrote to Commodore Hood in order for him to determine the cost of building a hospital at that island to accommodate 200 men.⁸⁵

Year	Ladyday Quarter	Midsummer Quarter	Michaelmas Quarter	Christmas Quarter	TOTAL
1795	22	36	43	77	178
1796	260	343	92	43	738
1797	95	56	17	28	196
1798	31	62	42	72	207
1803	N/A	N/A	34	156	190
1804	178	32	75	235	520
1805	134	135	272	181	722
1806	172	162	N/A	N/A	334

Table 6.6 – Total Number of Men Sent Ashore at Barbados, 1795-1806⁸⁶

In August 1804, Commodore Hood returned a detailed estimate for the erection of a hospital at Barbados.⁸⁷ Hood investigated two pieces of land which were in close proximity to one another and roughly costing £3,000 local currency each. He suggested that the navy purchase both plots of land and to ‘take as much as [they] wanted and have out the other, not to be built on, which would prevent any nuisances from small liquor mobs etc, and would join the army land, which would completely prevent any people living between.’⁸⁸ Hood’s estimate to construct a wooden building 100 feet in length, 25 feet in width and 24 feet in height with galleries around the main building was £3,710-6s-7d sterling.⁸⁹

The thesis survey period elapses prior to the Admiralty deciding what to do about a naval hospital in Barbados and therefore is not dealt with in greater detail here. It is worth

⁸³ NMM, ADM/F/34, Sick and Hurt to Admiralty, 9 September 1803.

⁸⁴ NMM, ADM/E/49, Admiralty to Sick and Hurt, 13 December 1803.

⁸⁵ NMM, ADM/E/50, Admiralty to Sick and Hurt, 20 March 1804.

⁸⁶ TNA, ADM 102/47, ADM 102/48, ADM 102/49, ADM 102/50. Figures are not available between 1799 and 1802.

⁸⁷ Hood’s detailed estimate is located in Appendix 8.

⁸⁸ NMM, ADM/F/36, Sick and Hurt to Admiralty, 5 November 1804.

⁸⁹ Ibid.

noting that within a few years of Hood submitting his estimate, the navy erected a purpose-built hospital for the reception of sick men near Carlisle Bay.

Hospital musters were submitted quarterly for Barbados and are available from 1795 to 1806 and beyond, save for four years when the hospital was closed and during the early period of its reinstatement. For most years, fevers were the most frequently occurring illnesses, but they affected less than half the men sent to Barbados hospital (Table 6.7). Fevers occurred the most in 1796 which coincides with the outbreak in the West Indies from 1793 to 1798. In that specific year, 64 per cent of seamen sent to the hospital were suffering from that particular disease compared to 1806 when only 15 per cent of men were sent ashore with the same complaint.

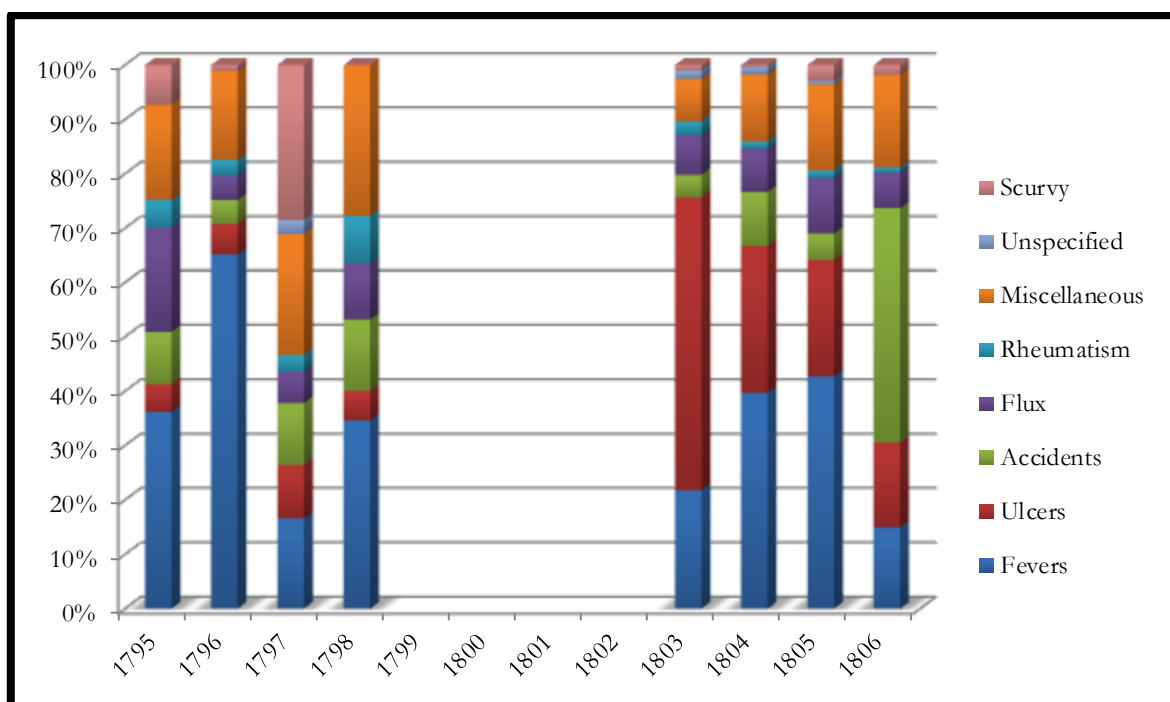


Table 6.7 – Breakdown of Diseases Afflicting Men at Barbados Hospital, 1795-1806⁹⁰

Figures from the muster books also denote whether each seaman was either discharged from the service, if they died or if they deserted. The majority of seamen were discharged back to service while only a small number died in the hospital. When Hood submitted an estimate for erecting a hospital, the number of men sent onshore was extremely high (Figure 6.8). In 1805, that figure nearly reaches 600 men while only two years prior less than 200 were sent to the hospital.

⁹⁰ TNA, ADM 102/47, ADM 102/48, ADM 102/49, ADM 102/50, Barbados muster books, 1795-1806. Figures are not available between 1799 and 1802. Figures for 1803 are only available for Michaelmas and Christmas quarters only. Figures for 1806 are available for Ladyday and Midsummer quarters only.

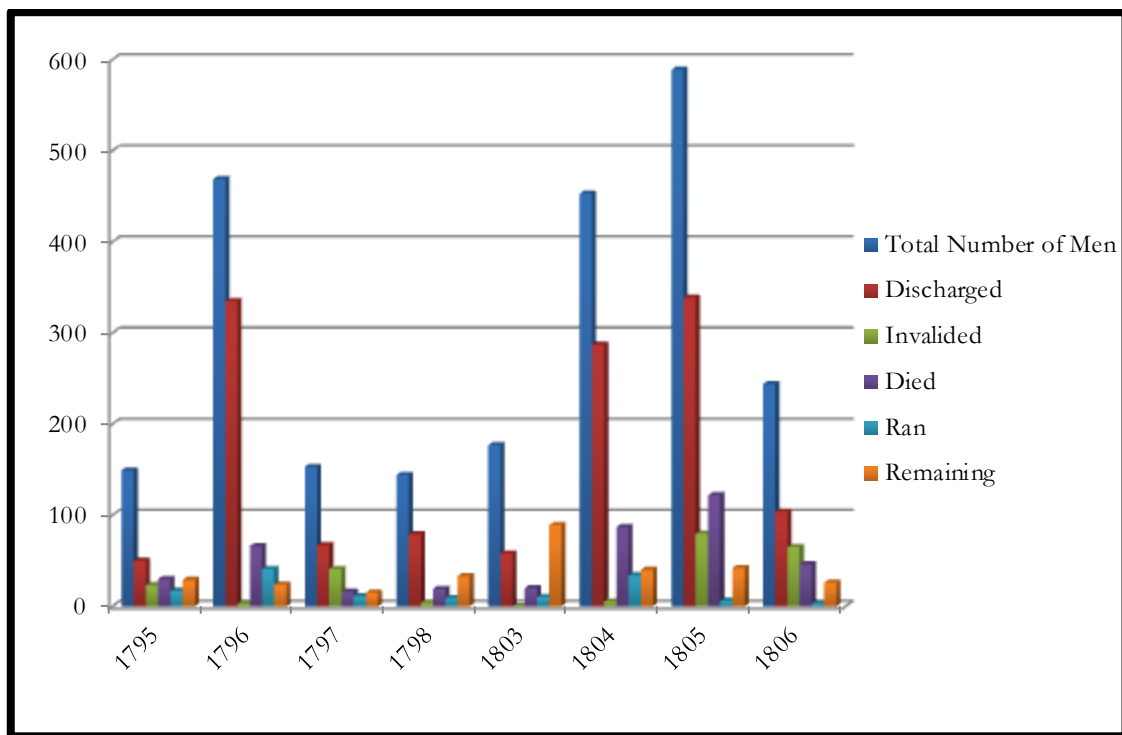


Table 6.8 – Percentage of Men Discharged, Invalided, Dead, Run & Remaining at Barbados Hospital, 1795-1806⁹¹

St Lucia, Martinique and Cuba

These three locations deserve a survey, albeit a much more abbreviated one. No permanent facility was ever erected at any one of these islands nor was it ever a consideration. The islands were used mainly during times of war; convenient locations where officers felt the men could be housed in order to regain their health and return to service.

St Lucia was in French hands at the outbreak of the Seven Years War, but by 1762 the island had been captured by the British. During the fighting to capture the island, the surgeon appointed to treat men onshore was handed his first assignment. Eleven men belonging to the bomb vessel *Basilisk* were badly burned over their entire bodies while destroying a French magazine on the island.⁹² The surgeon, George Vaughan, had neither a facility on the island to attend them nor did he have an agent to supply him with necessaries like linens and other dressings. Without key suppliers lined up, Vaughan was forced to spend his own money to procure material to treat the men's severe burns. As

⁹¹ TNA, ADM 102/47, ADM 102/48, ADM 102/49, ADM 102/50, Barbados muster books, 1795-1806. Figures are not available for 1799 through 1802. Figures for 1803 are only available for Michaelmas and Christmas quarters only. Figures for 1806 are available for Ladyday and Midsummer quarters only.

⁹² NMM, ADM/E/37, Admiralty to Sick and Hurt, 19 November 1762.

there were no arrangements on shore, the Sick and Hurt Board honoured his request to be reimbursed his considerable expenditure amounting to £10.⁹³

The island once again passed back to French control, but that did not last long. Vice Admiral John Byron captured the island again in late 1778 while D’Estaing and his squadron were 56 kilometres away at Martinique.⁹⁴ St Lucia was, as Admiral Rodney had predicted, the base from which the English could watch the movements of the French due to its proximity to Martinique where the French fleet was based.⁹⁵ Following the capture of the island, Byron’s fleet was wracked by typhus and scurvy and it was necessary for him to land the sick men at St Lucia for the recovery of their health. Unfortunately for Byron, there was a lack of facilities to support the fleet on the island; it had no dockyard and no naval hospital. The men were landed at Gros Islet Bay where he was forced to lodge them in huts and tents with the surgeons of the fleet going ashore each day to attend them.⁹⁶

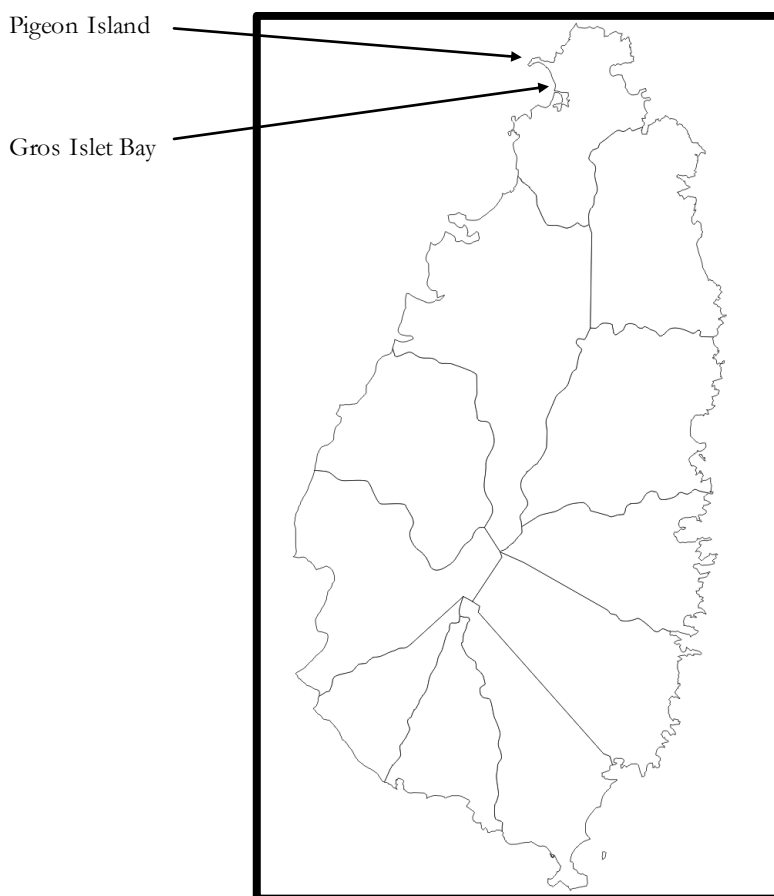


Figure 6.4 – Map of St Lucia

⁹³ Ibid.

⁹⁴ Russell F. Weigley, *The Age of Battles: The Quest for Decisive Warfare from Breitenfeld to Waterloo* (Bloomington: Indiana University Press, 1991).

⁹⁵ John H. Parry, Philip M. Sherlock and Anthony P. Maingot, *A Short History of the West Indies*, 4th edn (London: MacMillan Education Ltd, 1987), p.118.

⁹⁶ TNA, ADM 1/312, Vice Admiral Byron to Admiralty, 6 January 1779, 7 January 1779, 4 February 1779.

In July 1780, Rodney, who had assumed control of the Leeward Islands squadron, wrote to the Sick and Hurt Board to disclose the good effects of moving the temporary hospital arrangements from Gros Islet Bay just offshore to Pigeon Island (Figure 6.4). According to him, the men were able to recover faster at the latter location as it provided a fresher breeze and was isolated so the men were not tempted to desert nor did they have access to alcohol. He ordered small temporary hospitals, similar to sheds, to be built for the sick men ‘till such time as it might be determined whether the island might remain a part of the British Empire in which case it undoubtedly ought to be the place a general hospital should be fixed at.’⁹⁷ Those hospitals were destroyed by a hurricane in December 1780 and once again the men were forced to be housed in temporary huts and tents. Rodney purchased a French-constructed building which had been intended for use as a church at St Lucia to use as the naval hospital. He had the building removed to Pigeon Island where he felt that the ‘insular situation would be very advantageous by precluding the men both from straggling and drunkenness’ although ultimately he preferred ‘keeping all such as could possibly be treated on board their ships under the care of their respective surgeons on board.’⁹⁸ Rodney was further convinced that while the war continued, the principal naval hospital serving the Leeward Islands squadron must be located at St Lucia since it was the healthiest location throughout the West Indies. He was so adamant that that particular island was the principal location in the Leeward Islands that he spared little expense in tending to the construction of a new hospital for that purpose. By July 1781, Rodney had submitted nearly £5,000 in invoices for work carried out there.⁹⁹ When Rodney was relieved on that station, the focus on St Lucia was lessened and once again Antigua became the predominant location on the Leeward Islands station. The navy did not continue to use the building at Pigeon Island as a hospital because other islands on the station were better suited to care for the fleet.

Rodney played a significant role elsewhere in the West Indies, namely at Martinique. He captured the island from the French in 1762 and immediately realised its strategic importance. He quickly sent word to the Sick and Hurt Board reporting his intention to use the harbour at Fort Royal as a ‘general rendezvous’ for the ships of his squadron.¹⁰⁰ As Martinique was going to serve as Rodney’s base of operation on the Leeward Islands station, he proposed building a hospital at Fort Royal without delay (Figure 6.5). The

⁹⁷ TNA, ADM 98/14, Admiral Rodney to Admiralty, 10 December 1780.

⁹⁸ Ibid.

⁹⁹ Ibid.

¹⁰⁰ NMM, ADM/F/23, Sick and Hurt to Admiralty, 13 October 1762.

commissioners were not convinced that a permanent facility should be built and instead they proposed Rodney follow the usual practice of hiring quarters and contracting with someone local for victualling, necessaries and medicines.¹⁰¹ Rodney, who was convinced that Fort Royal was an advantageous location, instructed the surgeon at Barbados hospital to remove stores from that place and relocate the entire hospital to Martinique.¹⁰² But before the surgeon and hospital stores could be removed to Fort Royal, the preliminaries towards a peace were signed and the Admiralty anticipated a reduction in service in the West Indies.¹⁰³ When the Treaty of Paris was signed at the end of the Seven Years War, the French considered the lucrative sugar trade of Martinique so important that they ceded all of Canada to the British in order to regain control of the island and the neighbouring island of Guadeloupe.

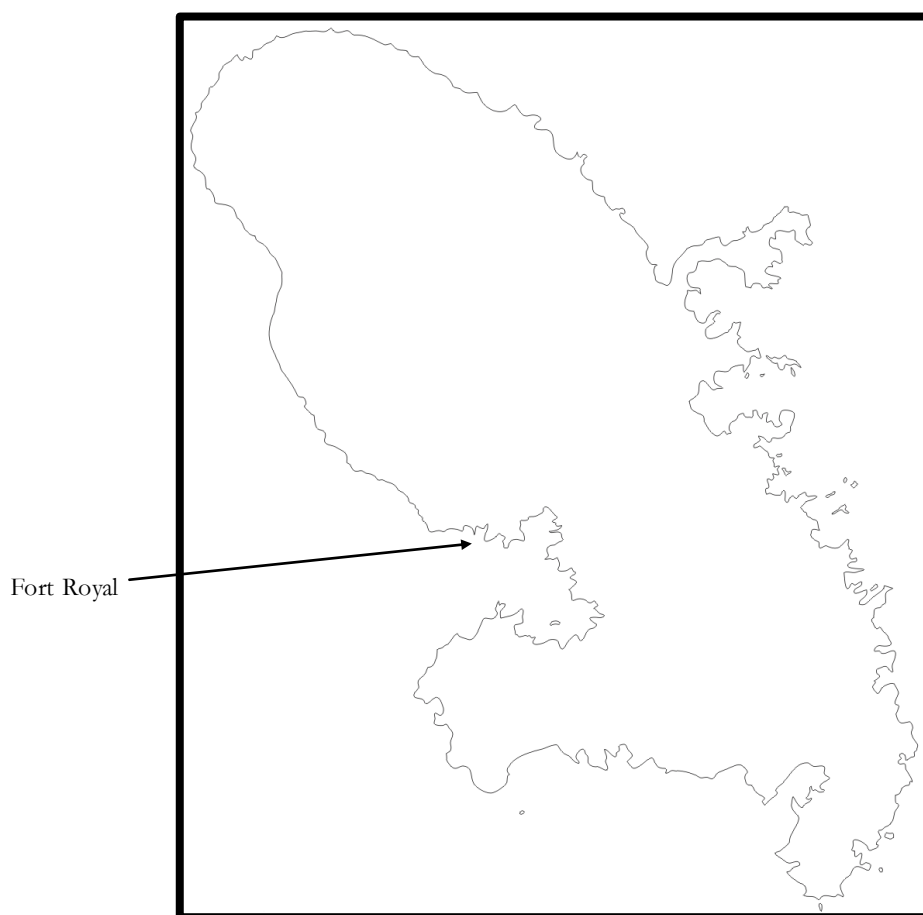


Figure 6.5 – Map of Martinique

French occupation on the island lasted for over thirty years, however the British managed to capture the island once again in 1794. Admiral Harvey wasted no time in establishing a hospital on a tiny island in Fort Royal bay that served both the navy and the army.

¹⁰¹ Ibid.

¹⁰² NMM, ADM/E/37, Admiralty to Sick and Hurt, 24 November 1762.

¹⁰³ Ibid.

Leonard Gillespie, who was discussed in Chapter 5, was put in charge of the hospital where he served for the next four years.¹⁰⁴ Supplies on the island were scarce and Gillespie had a difficult task supplying the hospital with necessities. Rather than procuring them at an inflated rate, the Sick and Hurt Board agreed to send out 400 bed cases, 400 pillows, 666 pairs of sheets, 666 pillow cases, caps, shirts and 6,000 pounds of curled hair to fill the mattresses.¹⁰⁵ In order to put the men in a healthier location, Rear Admiral Harvey removed the sick from their housing on the island into the Hospital de la Charite near the town of Fort Royal. According to Lloyd and Coulter, this particular building was originally a monastery which had been renovated in order to care for the French navy since 1777.¹⁰⁶ The Board maintained that ‘men recover faster afloat from the greater coolness and purity of the air and are not subject to intemperance or desertions as they are on shore.’¹⁰⁷ Gillespie was instructed to keep hospital costs down and to satisfy the Board’s request, he was only allowed 8d per man per day for those sent onshore. For that modest amount of money, he recognised sick men were indeed better off on their ships rather than on shore and the number of seamen sent to Martinique hospital was kept relatively low.¹⁰⁸ The navy continued with the hospital at Fort Royal until the Treaty of Amiens in 1802 which returned the island to France.

During his time at Martinique, Gillespie had a chance to observe a number of diseases, so many in fact that he was able to write two books instructing future captains and surgeons on how to treat diseases in tropical climates. His first work, *Advice to Commanders of His Majesty’s Fleet serving in the West Indies* was published in 1798 while his second work entitled, *Observations on the Diseases which prevailed in His Majesty’s Squadron in the Leeward Islands* was published in 1800. His experience in the West Indies compelled him to recommend that Martinique be made the main hospital in the Leeward Islands and he urged the closing of Antigua hospital because it had the worst reputation in the West Indies aside from Jamaica hospital.¹⁰⁹ His recommendation was never a possibility as the French regained control of the island briefly after Gillespie was no longer the surgeon and recovered it permanently in 1814.

¹⁰⁴ Lloyd and Coulter, *Medicine and the Navy*, p. 171.

¹⁰⁵ TNA, ADM 98/68, Sick and Hurt to Commander-in-Chief of Leeward Islands station, 17 February 1796.

¹⁰⁶ Lloyd and Coulter, *Medicine and the Navy*, p. 171.

¹⁰⁷ TNA, ADM 98/68, Sick and Hurt to Rear Admiral Christian, 6 January 1796.

¹⁰⁸ The hospital at Fort Royal served not only the navy, but also the army based in Martinique. Numbers of patients at the hospital were fairly high, although the majority of the men were from the army. Gillespie was also the surgeon to prisoners-of-war, meaning he was extremely busy during his four years at the island.

¹⁰⁹ Leonard Gillespie, *Observations on the Diseases which prevailed in His Majesty’s Squadron in the Leeward Islands* (London, 1800), pp. 132, 144.

When Spain entered the Seven Years' War early in 1762, they had already taken the precaution of bolstering their defences at a number of key ports in the West Indies. One of their most valuable and useful ports was Havana, Cuba, and the Spanish authorities dispatched forces to buttress the city's fortifications. In June, English forces commenced an amphibious attack on the city and by mid-August the Spanish surrendered. The death toll from the 64-day siege for the English was 305 killed in action and 255 who died as a result of their wounds. Once the siege was over the real suffering began. Victims of yellow fever, 'piled up after the end of human hostilities.'¹¹⁰ In October, General Albemarle reported that the army had 'buried upwards of 3,000 men since the capitulation.'¹¹¹ Albemarle lost more soldiers from disease in the two months of peace at Havana than the British Army had lost in all of North America during the entire Seven Years' War.¹¹² According to Syrett, by the 18th October the total number of army men who died from disease, mainly yellow fever, was 4,708.¹¹³ The Royal Navy fared only slightly better. Admiral Pocock reported that from June to October they lost 'about 800 seamen and 500 marines, and eighty-six were killed during the siege but from the number at present sick, as their Lordships will observe by the weekly account to be 2,673 and 601 marines, we have reason to apprehend several of them will die.'¹¹⁴

During the winter months, the outbreak of yellow fever at Havana subsided to some extent. In January 1763, Pocock authorised the expenditure of £1,500 on Peruvian Bark to further lessen the yellow fever amongst his squadron.¹¹⁵ Pocock was not the only one who exhausted large sums of money on medicines and necessaries for seamen.¹¹⁶ As the disease occurrences on shore were abundant, the idea of keeping men there for longer than necessary was not considered. Therefore, no naval hospital was ever established at that place. Surgeons were required to attend the sick men on board their ships or in temporary quarters in Havana. Supplies of medicines and necessaries were non-existent on the island as most were exhausted by the Spanish before the siege. The surgeon of the *Namur*, Samuel Ball Sherston, was the first to complain about the on shore medical establishment. In a letter to Pocock, the surgeon claimed that he attended a number of sick at Havana in addition to his regular duties and desired to be compensated.¹¹⁷ Sherston treated 593

¹¹⁰ J.R. McNeill, *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620-1914* (New York: Cambridge University Press, 2010), p. 185.

¹¹¹ TNA, CO 117/1, General Return of Officers, Sergeants, Drummers & Rank and File...from the 7th of June to 18th October 1762.

¹¹² McNeill, *Mosquito Empires*, p. 185.

¹¹³ David Syrett, *The Siege and Capture of Havana, 1762* (London: Navy Records Society, 1970), p. xxxv.

¹¹⁴ TNA, ADM 1/237, Admiral Pocock to Admiralty, 9 October 1762.

¹¹⁵ TNA, ADM 1/237, Admiral Pocock to Admiralty, 13 January 1763.

¹¹⁶ The ships' surgeons at Havana also expended considerable sums of their own money.

¹¹⁷ NMM, ADM/E/38, Admiralty to Sick and Hurt, 2 May 1763.

seamen in total and provided them with medicines at his own expense which he estimated to be \$290 local currency and had not received reimbursement.¹¹⁸ Within two weeks, the Admiralty agreed to arrange for a payment to be made to Sherston, although they acknowledged that normally ‘no allowance should be made to the navy surgeons for attending the people of their own ships when sick on shore.’¹¹⁹

Once the other surgeons at Havana learned of the allowance given to Sherston, they forwarded a memorial to the Admiralty requesting to receive the same benefit as their colleague. According to the surgeons, ‘the sick were put onshore into houses or tents, where they duly attended them, and furnished medicines, which they purchased from diverse parts at a very extravagant price’ and when the medicines ran out they ‘also supplied them with their own private stock of provisions and procured them many necessaries which their deplorable state stood in need of.’¹²⁰ According to Mr Jones, the surgeon of the *Hampton Court* present at the siege of Havana, the agent victualler for the fleet did not procure a supply of fresh provisions regularly. In the six weeks he was on shore, Jones alleged the victualler furnished fresh food once or twice every seven or eight days. He calculated his own expenses at \$238 local currency which he submitted to the Admiralty for reimbursement.¹²¹ Benjamin Lyon, surgeon of the *Pembroke* had a similar story. His ship had spent nearly a year and a half in the West Indies before she was ordered to the attack on Havana. By the time his ship sailed, Lyon claimed that the majority of his medicines were already expended and he was forced to replenish it at Jamaica before the siege began, costing him nearly £60. Once he arrived at Havana, Lyon was forced to pay over \$100 local currency for Peruvian Bark, opium and other medicines to treat fevers.¹²²

Once the Sick and Hurt Board read the testimony from all the surgeons involved in taking care of men following the siege, they presented their opinion to the Admiralty. Taking into consideration:

there was not a general hospital, or any hospital ships attendant on the fleet, and the memorialists appear to have exerted themselves, and to have shown a very commendable zeal for the good of His Majesty’s service, and the greatest humanity and tenderness for the sick people, by providing for their necessities, even in particulars which it was not a part of their duty as surgeons to furnish, and must unavoidably have undergone great fatigue, we are humbly of opinion that they have not only a right to be repaid the amount of the medicines administered

¹¹⁸ NMM, ADM/E/39, Admiralty to Sick and Hurt, 31 December 1764.

¹¹⁹ NMM, ADM/E/38, Admiralty to Sick and Hurt, 14 May 1763.

¹²⁰ NMM, ADM/E/39, Admiralty to Sick and Hurt, 17 April 1764.

¹²¹ NMM, ADM/E/39, Admiralty to Sick and Hurt, 31 December 1764.

¹²² Ibid.

during the time, when according to general practice an hospital on shore would have been established, if circumstances would have admitted of it, and for necessaries and provisions which they supplied at their own cost, but we also think them very deserving of their Lordships' consideration for a reward adequate to their trouble during the said period.¹²³

The Board agreed that 'it might be best to repay the surgeons the amount of the medicines they expended, together with the sums they actually disbursed for provisions and necessaries, and to make them an allowance in addition thereto for their trouble.' It was agreed that the Board would reimburse each surgeons' expenditure and 'as the service at the Havana was only temporary we have thought it reasonable to make some advance thereon in the proposed allowance to the memorialists, and therefore mentioned £1/5s a day.'¹²⁴ Aside from providing an expensive operation, the siege at Havana proved to both the Admiralty and the Sick and Hurt Board that there were definite advantages in establishing hospitals for the use of sick men on distant shores.¹²⁵

Conclusion

Early ideas for taking care of sick seamen on shore generally involved renting rooms from locals where the men could, theoretically, receive medicines and necessaries until they were well enough to return to service. This sick quarters system was unreliable and it was often the case that sick men found themselves lodged in public houses where alcohol was readily available. Alcohol negatively affected the men's treatment and it was not unusual for seamen to either desert the service or hinder their cure to the point that they required invaliding from the service. Both the Admiralty and Sick and Hurt Board knew the sick quarters system was not ideal; however there were a number of advantages for using it. By the mid-eighteenth century the sick quarters system had fallen out of favour with the navy. They preferred recruiting contractors to handle the day-to-day running of onshore facilities dedicated to assisting sick men. At some foreign locations like St Lucia and Martinique, the need to erect a purpose-built facility was not crucial. The contractor system suited the navy's needs in those places while also keeping costs to a minimum. At other islands like Jamaica and Barbados the navy's needs were different. Jamaica was the principal island serving the station of the same name, and the main portion of the squadron remained at that island. Therefore in 1740 the decision was made to do away with the contractor system and erect a purpose-built naval hospital at New Greenwich. Despite the setbacks and high mortality rate, the hospital remained open for over a decade. Finally, the

¹²³ NMM, ADM/FP/8, Sick and Hurt to Admiralty, 11 February 1765.

¹²⁴ Ibid.

¹²⁵ NMM, ADM/E/40, Admiralty to Sick and Hurt, 29 March 1765.

Admiralty agreed to build another hospital at Port Royal, which ultimately proved healthier and better placed to serve the fleet. The Admiralty was not keen to repeat the mistakes of Jamaica on a different island. When proposals were submitted to erect hospitals at Barbados and St Lucia, they were extremely reluctant to outlay capital for a building that might do more harm than good. Eventually they agreed to erect hospitals at Antigua and Barbados as they saw financial benefits from not continually paying rent for buildings they had little control over.

In all, both the Sick and Hurt Board and the Admiralty did a proficient job in securing the health of seamen in the West Indies. Once they appreciated that a few purpose-built hospitals in strategic locations ensured the best level of care abroad, the navy wasted little time in erecting them. The level of care the men received also depended largely on the surgeons and victualling contractors appointed to each location. Commanders on each station were vigilant when it came to ensuring those men performed their roles at an acceptable level. When a hospital had benefit of both a surgeon and victualling agent completing their roles adequately, as was the case at Jamaica with Robert Wood, those facilities provided unrivalled settings for seamen to regain their health and return to service.

Chapter 7

Antigua Naval Hospital: A Case Study

Although the island of Antigua first had contact with Europeans in 1493 during Christopher Columbus's second voyage, European settlement did not occur for over a century largely because of Antigua's scarcity of fresh water and its local uprisings. In 1632, a group of Englishmen from St. Kitts established a successful settlement at Antigua, and in 1674, with Sir Christopher Codrington's arrival, the island entered the sugar trade as many of the surrounding islands in the West Indies had already done. Codrington was an enterprising man who had come to Antigua to discover whether or not the island would support the sort of large-scale sugar cultivation that already flourished elsewhere in the West Indies. His initial efforts proved successful, and over the next fifty years sugar cultivation on Antigua exploded. By the middle of the eighteenth century the island was dotted with more than 150 cane-processing windmills and her exports to Europe and North America were extremely profitable.¹

Following the economic boom on the island, Antigua continued to grow in importance to the British Government. The island's geographical position in the West Indies made it a principal location on the main sailing routes to and from Europe for ships laden with commodities. It was at English Harbour, on the southern side of the island, and to a lesser extent St Johns located on the northwest side, that the navy established themselves with bases for the squadron serving the Leeward Islands. English Harbour had the only careening wharf on the station and after 1744 the dockyard underwent significant modifications including the lengthening of the careening wharf and the building of new storehouses.² By carrying out these necessary and expensive works, the navy demonstrated their reliance on Antigua as the base of operations on the Leeward Islands station. No other English-held island had facilities equal to that in the West Indies with the exception of Jamaica.

Despite England's reliance on Antigua both for financial and logistical reasons, the navy failed to establish a hospital until much later than Jamaica. It was not until the 1770s that the navy began debating whether or not to erect a purpose-built hospital on the island. It took them over twenty years to go from the development stage to it being operational,

¹ Antigua and Barbuda, 'Antigua's History and Culture' section, <http://www.antigua-barbuda.org/ahhis01.htm> [last accessed 29 December 2008].

² Duncan Crewe, *Yellow Jack and the Worm: British Naval Administration in the West Indies, 1739-1748* (Liverpool: Liverpool University Press, Liverpool, 1993), p. 8.

meaning the entire process falls within the survey period of the thesis. Therefore it is ideal for this thesis to examine the whole process of building it as a case study. This chapter thus begins by understanding the system of health care on the island before the 1770s; it then reviews the deliberations between the Admiralty and Sick and Hurt Board regarding the construction of a hospital; finally it analyses the hospital muster books to ascertain the effectiveness of the hospital once it was opened in the 1790s.

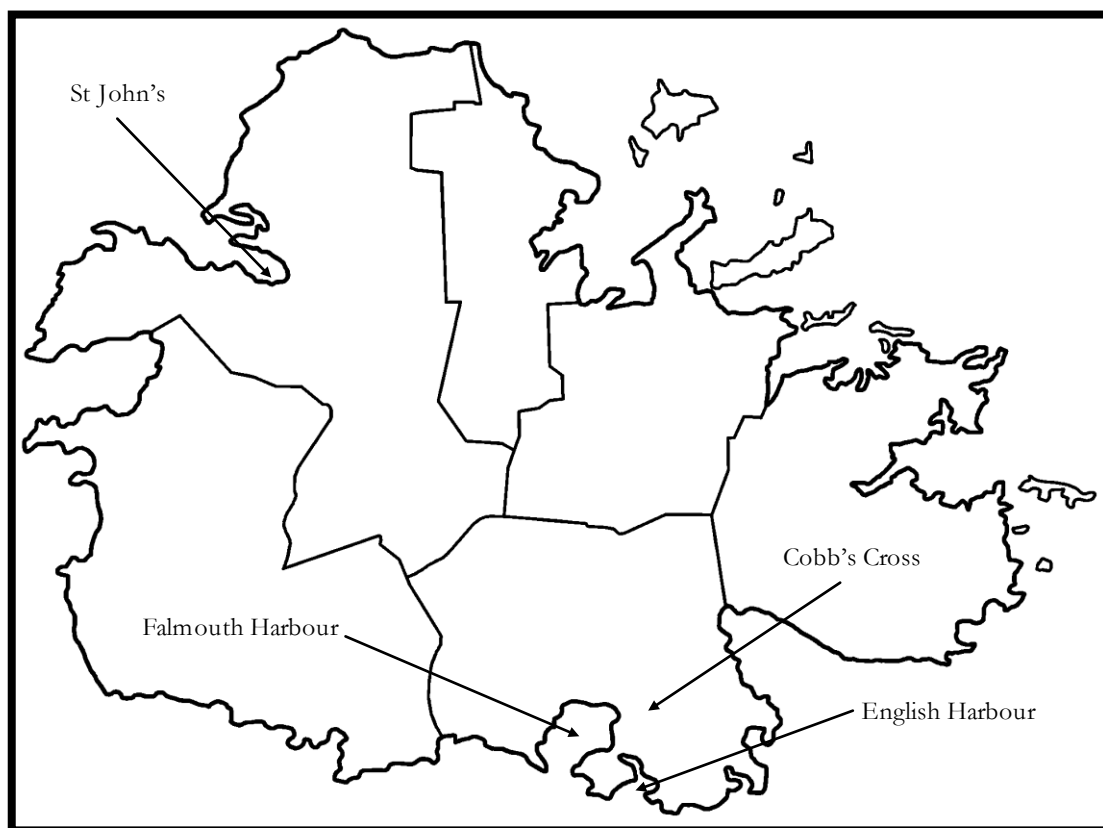


Figure 7.1 – Map of Antigua

Since Antigua was central to the navy's operations in the West Indies, the Admiralty and Sick and Hurt Board decided to manage the sick seamen on shore using the contractor system. Hospital facilities in the mid-eighteenth century were provided and subsisted by Henry Lascelles, a London merchant, with strong familial ties in the West Indies. His contract commenced in May 1744 and stipulated that he was responsible for supplying 'an able surgeon' for 'the care and cure of such sick and wounded men set on shore on those islands, from any of His Majesty's ships.'³ The remuneration for this service was 13s-4d per man per cure. This fee also covered the cost of Lascelles furnishing sick quarters, fresh meat and any other necessary provisions requested by the surgeon. The men were entitled to one pint of good and sound Madeira wine, or a punch containing sugar in lieu when the

³ NMM, ADM/F/8, Sick and Hurt to Admiralty, 16 May 1746. A copy of the contract entered into between the Sick and Hurt Board and Henry Lascelles is included in the letter to the Admiralty.

wine was not available. If men were not fit to be prescribed a diet of fresh meat, Lascelles was contracted to provide those men with ‘rice, eggs, cheese or any other provision, in such proportion as shall be sufficient for their maintenance.’⁴

Lascelles appeared to provide an adequate service under the terms of the contract. When he was no longer employed in that capacity (he died in 1753 which may be the cause of the contract termination), the subsequent contractors were assigned the same duties for the same pay. In the early 1750s the contractor employed to care for the men rented a facility in an area known as Cobb’s Cross (Figure 7.1). When Rear Admiral Frankland arrived to take over the command of the Leeward Islands station, he found the on shore medical arrangements unacceptable. Firstly, Frankland disapproved of the hospital being at Cobb’s Cross, which was located roughly one to two miles away from English Harbour. Although the distance does not seem too great, the lack of passable roads (especially during the rainy season) made the trek very difficult and fatal for a number of sick men. Frankland heavily criticised the hospital at Antigua:

if it may be termed one’ but conveyed that it was ‘on much better footing than it was when I arrived, as they now dress their victuals for them, keep them clean and under some decorum and order, whereas before they had a pound of meat served raw to them which they generally sold for rum; and indeed the whole method of putting people as sick on shore, and other abuses with regard to sick quarters, were so great that the bare mentioning of them is irksome to me.’⁵

He protested to the contractor’s local agent, Dr Maxwell, for permitting rum to fall into the hands of the seamen. Frankland claimed that the negroes employed at the hospital were to blame; however he also realised that rum was brought in by the men’s shipmates. It was not only the rum that Frankland protested against, he found the supply of rice and eggs to those men who were not fit to consume fresh meat had not been arranged. There was also a delay in supplying water, sheets, pillow cases, bedding, washing and nurses, and the quality of the house used as the temporary hospital was in a ruinous state. All this was in breach of the contract.⁶

Frankland sent the captains of the *Augusta* and *Edinburgh*, three captains of marines and the surgeons of the *Anson*, *Edinburgh* and *Augusta* on shore to investigate the full extent of the problem. Their findings are worth noting at length to fully appreciate the conditions the sick were subjected to:

⁴ NMM, ADM/F/8, Sick and Hurt to Admiralty, 16 May 1746.

⁵ NMM, ADM/E/17, Admiralty to Sick and Hurt, 8 December 1756.

⁶ Ibid.

A surgeon attends once a day, seldom or never twice, as he lives four miles distant from it. No surgeons mate. The quarters in general very bad, particularly the upper wards; and so greatly crowded, that they lay even closer than seamen are usually stowed aboard a ship, and several of them in hammocks, which obstructs the passage of air in such manner as to endanger the infections becoming general. No Madeira wine has been provided in lieu of which punch and small French red wine has been issued, but none of the later produced to for us to taste. Fire and candles supplied, water for drinking good, that for making their rice, milk, broth and boiling their provisions very muddy, foul and bad, and in general complained of, and the surgeons are of opinion very hurtful to the men. No spoons and platters but what the men bring with them. None appeared as nurses but three negro women, two of which said they were employed as cooks, the third ingenuously acknowledged she had been sent for in the morning and never was at the hospital before, notwithstanding sick men are now maintained in the hospital: nor are there any other conveniences for their making water or easing themselves [than] tubs without the doors, which obliges them to get out of their cradles for that purpose, or foul their beds. All the bedsteads are badly boarded or cross bottomed, and must be very uneasy for sick men to lay on. No bedding has been provided nor sheets, except in the petty officers ward, and seventeen for other wards, most of which were new cloth, and put on the morning of our visitation, nor is there a single pillow case in the hospital...No linen has been washed for the sick, but to the contrary they are obliged to sell their bread to pay at the rate of a bit for washing two shirts.

Therefore we are of opinion (which is demonstrated by our enquiry) that several abuses have been made, and are daily practiced...and are farther of opinion that it will be necessary towards causing a reformation of the same, to have the several punch houses thereabouts put down, particularly as the steward of the hospital keeps one at a very small distance from it, which greatly contributes to the irregularity of the seamen, and in a great measure retards their cure.⁷

Frankland forwarded his opinion and the survey to the Admiralty for review. The Admiralty, in turn, referred it to the Sick and Hurt Board to ascertain why such an inferior contractor remained employed if the allegations made by Frankland were true. The Board asserted their ignorance on the matter and indicated that this was the first they heard of the problems at Antigua. They sent for the contractor immediately, who also claimed he was unaware of any complaints and requested time to communicate with his agent on the island to rectify any shortcomings. The Board was not eager to allow the contractor time to correspond with his agent as the conditions at Antigua could not be allowed to continue. His contract was terminated that day and the Sick and Hurt Board set out to find a new contractor.⁸

⁷ Ibid.

⁸ NMM, ADM/F/14, Sick and Hurt to Admiralty, 13 December 1756.

In succession to Frankland, Commodore Moore was the first commander to suggest that the navy erect its own facility at Antigua rather than continuing to depend on contractors to locate suitable lodging. In his letter to the Admiralty he proposed that if the navy erected its own hospital, it should be erected at English Harbour rather than Cobb's Cross, and an additional one at St Johns.⁹ The Sick and Hurt Board had already written to him on the matter to acquaint the commodore that they had entered into a contract with Mr Patterson, 'a gentleman of estate on the island, and in the neighbourhood of English Harbour and who, in addition to the obligations of his contract, proposed, and seemed very willing, to erect a building, or convert one to an hospital for the reception of the sick near to Falmouth', a village about a mile distant from English Harbour.¹⁰ In response, Commodore Moore wrote to the Admiralty expressing his dissatisfaction with the arrangements at Antigua which, he claimed, had caused the number of men in the ships' companies to be reduced into a very low state. Moore blamed the inadequacies of the contractor in providing proper arrangements and care for the sick men. He claimed the houses rented by Patterson for use as sick quarters had been full for some time and that Patterson was making no arrangements to either locate additional housing or erect his own building as he had proposed. Those men who were in sick quarters were not receiving proper care and were without nourishment to aid in their recovery.¹¹ Seeing as Patterson had only recently taken up the contract, the Sick and Hurt Board was inclined to allow the contractor more time to resolve his failings.

Moore was not pleased and immediately forwarded another complaint to the Admiralty protesting the lack of bedding supplied by Patterson. He claimed the sick were forced to carry their own bedding from their ships to the rented houses and those with infectious distempers were forced to lie in the beds which they made use of during their illness. Although Patterson was in direct violation of his contract, the Sick and Hurt Board made arrangements for 500 complete sets of hospital bedding to immediately be sent out to alleviate the suffering of the sick.¹² Despite the extra time afforded to him, Patterson was still not fulfilling the terms of his contract. Prices for the necessaries that he was expected to supply the hospital were considerably higher than he had assumed and he was operating at a loss. He claimed the Madeira wine had doubled in price in only two years and rum increased by four times in the same amount of time. As the prices for many other victuals had also mushroomed, Patterson gave notice to terminate his contract at midsummer of

⁹ NMM, ADM/E/29, Admiralty to Sick and Hurt, 4 September 1759.

¹⁰ NMM, ADM/F/20, Sick and Hurt to Admiralty, 7 September 1759.

¹¹ NMM, ADM/E/29, Admiralty to Sick and Hurt, 29 November 1759.

¹² NMM, ADM/E/29, Admiralty to Sick and Hurt, 19 February 1760. NMM, ADM/F/20, Sick and Hurt to Admiralty, 20 February 1760.

1760 unless the Board agreed to augment his payment by 4d per man per day. According to his calculations, no one else would be able to undertake the contract at his price (2s-6d) without operating at a loss. Not only did Patterson feel he had done the best possible job considering the increase in prices for most items, but he had also converted some of his own cargo buildings, which he customarily used to make sugar and rum, into facilities for the reception of the navy's sick men.¹³ Before the Board made a decision on whether or not to increase the contract price, Commodore Moore wrote a letter advising of Patterson's death.

In order to alleviate some of the inconveniences Moore referred to in his correspondence, the Admiralty authorised the Sick and Hurt Board to enter into an agreement with an appropriate person at Antigua to erect a hospital at his own expense which the Crown would rent on a contractual basis.¹⁴ This proposal appeared to solve a number of problems. The navy would have use of a new purpose-built facility without having to release a large amount of capital for its erection. A contractor would still be required to manage the daily victualling which had the potential to be done unsatisfactorily although there was some assurance in knowing the sick seamen were housed altogether in a secure location. The Sick and Hurt Board advertised for over a year without success. They wrote to the Admiralty signifying the trouble they experienced in finding a person at Antigua who would erect a hospital at their own expense and they suggested the Crown undertake the project themselves.¹⁵ With their letter, the commissioners enclosed an estimate for the proposed hospital providing the general layout and building materials for a facility that could house 300 sick men. They anticipated that if the work was done to a reasonable specification, the total cost of erecting the wards, cisterns and officers' apartments would be £13,409.¹⁶

The Admiralty did not respond to the Sick and Hurt Board's proposal, although the former agreed to alter the system of contracting slightly. As they had done at Jamaica, the Admiralty felt that sick men would be better served by a naval-appointed surgeon, rather than relying on the contractor to supply one. They agreed to dispatch a surgeon from England who was paid a fixed salary of £250 per annum as well as a dispenser who was paid £120 per annum.¹⁷ Charles Este was confirmed as the surgeon at Antigua in March

¹³ NMM, ADM/F/20, Sick and Hurt to Admiralty, 22 February 1760.

¹⁴ NMM, ADM/E/30, Admiralty to Sick and Hurt, 18 April 1760.

¹⁵ NMM, ADM/F/21, Sick and Hurt to Admiralty, 7 March 1761.

¹⁶ *Ibid.*

¹⁷ NMM, ADM/F/22, Sick and Hurt to Admiralty, 3 September 1761. NMM, ADM/E/34, Admiralty to Sick and Hurt, 1 October 1761.

1762, but with the coming of peace in 1763, the navy reduced the number of men serving on both West Indies stations. Este's salary was reduced to £200 per annum and he now acted as the hospital's agent, for which service he received an additional 13s-4d per cure.¹⁸ Despite adjusting the method of care on shore at Antigua to include naval-trained surgeons, the commander-in-chief, Rear Admiral Tyrrell, was dissatisfied. He claimed the seamen still had the ability to obtain hard liquor easily which encouraged the men to behave in despicable ways and to also desert the service. In Tyrrell's opinion, a hospital ship or hulk which could lie in the Bay of Antigua (English Harbour) was better suited for medical purposes instead of the current situation. He felt that the use of a hospital ship 'would contribute much more to their speedy recovery, and likewise more effectually prevent desertion than the sending them on shore.'¹⁹ The Sick and Hurt Board concurred with Tyrrell's proposal especially since the Admiralty had not allowed the erection of the permanent naval hospital they proposed two years earlier. The Admiralty referred the plan to the Navy Board for further consideration and to ascertain the availability of a ship to satisfy the job.²⁰ The plan was never executed because local men contacted the Sick and Hurt Board replying to their advertisement to erect a naval hospital at Antigua which the navy would rent.

At this point, the Seven Years' War ended. Nevertheless built at some point between 1766 and 1768 a hospital was erected at English Harbour by Mr Whitehead and his partner Gilbert Francklyn. The total cost to the men, which included the purchase of the land, amounted to £6,368. Also incorporated into the cost was the erection of houses for the surgeon and the dispenser as well as a cistern to supply the hospital with fresh water.²¹ Once the hospital was completed, Whitehead took up the role of contractor at the usual rate of 13s-4d per man per cure as well as an additional fee of £500 per annum for rent.²² He did not serve long as the hospital's contractor because in 1769 Robert Grant submitted a tender to victual the sick men for 2s-1¼d per man per day. Grant's considerably reduced rate enticed the navy to supersede Whitehead, although since the hospital belonged to the latter, the former was instructed to pay the £500 rent directly to the proprietors as well as additional charges for use of the cisterns, storehouses and a powder magazine which brought the total to roughly £1,058 per annum.²³

¹⁸ NMM, ADM/F/24, Sick and Hurt to Admiralty, 25 May 1763.

¹⁹ NMM, ADM/F/24, Sick and Hurt to Admiralty, 29 July 1763.

²⁰ NMM, ADM/E/38, Admiralty to Sick and Hurt, 18 August 1763.

²¹ NMM, ADM/E/41, Admiralty to Sick and Hurt, 22 August 1770.

²² NMM, ADM/E/41, Admiralty to Sick and Hurt, 22 August 1770. The rent also included insurance for fire and hurricanes as well as all maintenance charges.

²³ Ibid.

Within a short period of taking up his contract, Grant became an enemy of Commodore Man, who was charged with the control of the Leeward Islands station in 1770. The contractor was unhappy with the rental arrangements for the hospital at English Harbour and gave notice to both Man and Francklyn (Whitehead was now deceased) of his intention to remove the sick men from that facility and relocate them to Cobb's Cross, a site that had previously been used by the navy to temporarily house sick men prior to the erection of Francklyn's building. Grant felt that £500 was too much to pay for the use of Francklyn's facility and was causing the contractor to operate at a hefty loss. If he removed the men to Cobb's Cross, he believed he could find a comparable building for a reduced fee. Man denied the request to remove the sick on the grounds that Cobb's Cross was over a mile away and as previously mentioned the lack of passable roads made the journey very dangerous or even deadly for men in a sickly state. In his report to the Sick and Hurt Board in April 1770, Man voiced his dissatisfaction with Grant's intention to move the men farther away from the navy's base of operation. He suggested that, rather than allowing Grant to terminate the rental agreement, the Admiralty could purchase Francklyn's land and hospital. Man stressed the importance and benefit of purchasing the hospital and putting it 'on the same footing with other Royal hospitals in these parts; for, until something of that kind is done, we shall always be in some degree (as in the present case) subject to the caprice of the contractors.'²⁴

The Sick and Hurt Board did not reply to Commodore Man forcing the latter to write to them again in May and June to reiterate his annoyance with Grant's behaviour. Man also indicated that the contractor had made considerable progress on repairs to a building at Cobb's Cross which he intended for use as the new hospital.²⁵ The more Man considered the present facility at English Harbour, the more he deemed it appropriate because 'it stands upon a hill and enjoys a free current of air; the wards are convenient, the dispensary, surgeons house, out houses etc all contiguous thereto, and there is also a tank or cistern to supply them with water.'²⁶ He was dissatisfied with the house at Cobb's Cross since it did 'not stand so well, nor so airy, the cistern is in ruins, the old house not near so convenient and with all the proposed additions cannot be made equal to the other.' Furthermore, Man stated that the house at Cobb's Cross was 'at least three-quarters of a mile from the head of

²⁴ TNA, ADM 97/86, Admiral Man to Sick and Hurt, 23 April 1770.

²⁵ TNA, ADM 97/86, Admiral Man to Sick and Hurt, 24 June 1770.

²⁶ Ibid.

English Harbour partly over rugged road, which, when that house was before used as an hospital [it was] fatal to many a man who...died in the carriage thither.²⁷

In July the Board wrote to Man; however they did not respond to his request to purchase Francklyn's land and buildings. They thanked him for his attention and dedication to that branch of service as well as approving his appointment of William Coltart as the new surgeon at Antigua.²⁸ As the Board made no mention of how to proceed with the contractor, Man was forced to make his own determination about the situation. In his next report to the Sick and Hurt Board, he indicated that rather than allowing Grant to remove the patients to Cobb's Cross, he agreed to take up the contract with Francklyn, effectively becoming his tenant on behalf of the navy for a period of three months. As the victualling contract was still held by Grant, he remained responsible for providing all food and necessaries. By becoming Francklyn's tenant, Man only afforded the navy a temporary fix. He again urged the Board to purchase the existing hospital and establish a permanent system for care at Antigua.²⁹ He emphasised the importance of setting up a permanent naval hospital by showing 'how liable the service is to be distressed by the avarice of a contractor for the sick and hurt...which would cease was the hospital a Royal building belonging to the Crown.'³⁰ While the Board agreed that they would never permit the sick men to be moved to a location not approved of by the commander-in-chief, they were not certain that purchasing the buildings at English Harbour was appropriate for the navy.³¹

By September, the three month contract Man took out with Francklyn was practically expired and he still had not received any advice on how to proceed. He was forced to extend the contract until the end of 1770 and hoped he would hear from the Sick and Hurt Board during that time with instructions on how they wanted to move forward.³² The Board wrote to him in early September requesting he liaise with Francklyn to ascertain what terms the proprietor would agree to in selling his land and hospital. The letter also requested Man to identify alternative locations for a hospital should the Board not come to agreeable terms with Francklyn. Some of the Board's hesitation in purchasing the existing hospital stemmed from its unhealthy position some 200 paces to windward of a brackish swamp which resulted from a branch of English Harbour ebbing and flowing 'regularly through the mangroves that surround[ed] part of the Harbour [and the hospital]...[and]

²⁷ Ibid.

²⁸ TNA, ADM 99/45, Sick and Hurt Minutes, 6 July 1770.

²⁹ TNA, ADM 98/86, Admiral Man to Sick and Hurt, 12 July 1770.

³⁰ NMM, ADM/E/41, Admiralty to Sick and Hurt, 22 August 1770.

³¹ TNA, ADM 98/10, Sick and Hurt to Admiralty, 24 August 1770.

³² TNA, ADM 97/86, Admiral Man to Sick and Hurt, 20 December 1770.

also in the rainy season the waters from the adjoining hills run into the sea through a gut or channel called Tobacco Gut.’³³ The surgeon, William Coltart expressed concern over the ‘offensive smell’ rising from the swamp during the rainy season, although the waters ran off during the dry season leaving the gut dried up. Being aware of the former situation at New Greenwich hospital in Jamaica and the unhealthiness of that place having been built in close proximity to a morass thirty years prior, the Board was justifiably apprehensive about purchasing Francklyn’s property. Following a survey of different areas in the vicinity of English Harbour, Man felt, that despite the morass, the current building was the best solution, although he conceded that if the Admiralty was concerned about that particular aspect, an alternative was to erect a new building on the Crown’s land between Falmouth and English Harbours.³⁴

Gilbert Francklyn left Antigua in 1771 in order to return to England to attend his other business interests. He wrote to the Admiralty upon his arrival relating the troubles he experienced with Grant, the contractor for food to his hospital, as well as his willingness to either continue with his contract with the navy for providing his building on rental terms or for the Crown to purchase it from him. In order to alleviate the frequent complaints from commanders on the station, Francklyn proposed leasing the entire 41 acres he owned for an extended period of 21 years although he was flexible with the time which could have been altered according to the needs of the navy.³⁵ The Admiralty referred the matter to the Sick and Hurt Board and asked them to weigh all the options with regards to Francklyn’s land as well as considering erecting a new building on Crown land. According to the Board’s response, they were not keen on agreeing a long-term lease with Francklyn. They expressed concern over the:

great inconvenience in carrying on our service in that island, owing to the hospital not being the property of the Crown, we have for some time past corresponded with Admiral Man, with a view to our getting all the information necessary respecting the situation and value of Mr Francklyn’s premises, or of any other convenient lands or places which were fit and might be had for our purpose.³⁶

Despite Francklyn’s hospital already in use for the sick at Antigua, the Board felt that erecting buildings on Crown-owned land was the better option. They suggested a new hospital be built:

upon the spot which Admiral Man and other naval officers have pointed out as the most convenient [and] we are humbly of opinion that, if it is

³³ Ibid.

³⁴ Ibid.

³⁵ NMM, ADM/E/41, Admiralty to Sick and Hurt, 10 May 1771.

³⁶ NMM, ADM/FP/14, Sick and Hurt to Admiralty, 17 May 1771.

made capable of containing 300 patients, it will fully answer [the navy's needs]...We are also of opinion that provision should be made for our surgeon and dispenser, and for two assistant surgeons and as the hospital at Jamaica which was built by the Navy Board at the beginning of the late war has been found to answer the purpose extremely well, we beg leave to offer it to their Lordships consideration, whether on account of the similarity of the climate of Antigua, it may not be very proper to adopt the same kind of plan, regard being had to the number of people to be accommodated.³⁷

The Sick and Hurt Board followed up with a letter to the Admiralty and the Navy Board concerning the erection of a naval hospital at Antigua between Falmouth and English Harbours rather than purchasing Gilbert Francklyn's buildings and land.³⁸ On the 16th January 1772 the Admiralty granted permission to the commissioners to erect a hospital on the Crown's land with enough room to house 300 patients as well as buildings to house the dispensary and a surgeon's and officer's house.³⁹ Francklyn learned of the navy's plan to build on their own land rather than leasing or buying his and he wrote to the Navy Board in February requesting they reconsider.⁴⁰ In his letter, Francklyn signified his displeasure at the way he and his partner were lead to believe that when they erected their hospital, the navy would continue to lease it from them for an indefinite period ensuring the partners recuperated the money they spent. He also requested that the Admiralty reconsider their order to build a new hospital. If they insisted on going ahead with the plan, Francklyn hoped the navy would compensate him financially for his large expenditure made only five years earlier. If the navy no longer had a need for his buildings, he argued they would be totally useless to him.⁴¹ Francklyn's pleas for reconsideration did not fall on deaf ears. The Admiralty called a meeting with the Sick and Hurt Board and the Navy Board to discuss what could be done with regards to the existing hospital.⁴² The commissioners suggested suspending the Admiralty order of the 16th January for erecting the new hospital until an appraisal of Francklyn's land and buildings could be carried out by the naval surveyor on the island.⁴³

Throughout the deliberations in London, no one wrote to Admiral Man to keep him abreast of the situation. The tone of his letter sent in April 1772 clearly exhibited his frustration not only with the lack of communication, but with the conduct of the

³⁷ NMM, ADM/FP/14, Sick and Hurt to Admiralty, 17 May 1771.

³⁸ NMM, ADM/A/2650, Admiralty to Navy Board, 27 December 1771.

³⁹ NMM, ADM/E/41, Admiralty to Sick and Hurt, 16 January 1772.

⁴⁰ NMM, ADM/A/2650, Admiralty to Navy Board, 27 December 1771.

⁴¹ NMM, ADM/E/41, Admiralty to Sick and Hurt, 20 February 1772.

⁴² TNA, ADM 99/47, Sick and Hurt Minutes, 28 February 1772.

⁴³ NMM, ADM/E/41, Admiralty to Sick and Hurt, 17 March 1772.

contractor as well.⁴⁴ While the administrators in London were contemplating the future of the hospital, Grant remained in charge of victualling the men at English Harbour. During the previous year, the hospital surgeon, William Coltart, criticised the lack of supplies reaching the hospital. In May 1771 he wrote to Man, then at Barbados, maintaining there were not enough tubs and candles to carry out his duties and Grant's steward refused to provide the requested materials. He also claimed the steward showed disrespect toward him when he 'came into the surgery ward and grossly insulted me, and called me all the rascals and scoundrels and challenged me to fight him; and at the same time hove his head in my face and clinched his fists and told me he had no more business to find tubs than to find me instruments.'⁴⁵ Coltart also wrote to Captain Cauldwell of the *Squirrel* who was at English Harbour during Man's absence complaining the hospital had not been supplied with cans, platters, spoons, table linen, towels, chamber pots, blankets, coverlids, feather pillows, and pillow cases. Additionally he claimed:

...very few of the patients have sacking bottomed cradles, the mattresses and bolsters should be filled with hair instead of which they are filled with plantain leaves which are very disagreeable to the patients and soon become unfit to lie on. There is a great deficiency and want of sheets; not a third of the number specified by contract being supplied, there is also a want of tubs for different uses of the sick and I have been under the necessity of purchasing them myself; the people's body linen is not properly washed and made clean, nor so often as is necessary, they often are sent back as dirty as they went. The agent for the contractor refuses giving soap for washing the bandages, and for these two quarters past I have been obliged to supply it, to avoid disputes which I have always endeavoured but to no purpose. The patients are often served rum almost new, and wine that is not sound; bread not well baked, sometimes neither roots nor greens and there is not any of the cooling drinks or phtisans as mentioned in the contract to be got when ordered. The nurses are not properly supplied when wanted, some of them are new negroes, others of them are old and past their labour and consequently unfit for attending the sick and doing the duty of the hospital. The stewards of the hospital have often served rum unmixed with water, as also pork in room of beef and mutton to the no small detriment of the patients, who have been told by the stewards of the said hospital that they must find firewood and dress their own victuals themselves, which was attended with many ill consequences, such as the recovery patients pulling down of people's houses near the hospital; particularly some of the captains house, and even a part of the hospital itself – very often there is not a sufficiency of water or rice gruel boiled for breakfast – In short the contract has never been complied with since I came to the hospital by Mr Robert Grant's agents, who have and do daily flatly refuse almost everything that is demanded agreeable to the contract.⁴⁶

⁴⁴ TNA, ADM 97/86, Admiral Man to Sick and Hurt, 21 April 1772.

⁴⁵ TNA, ADM 97/86, Admiral Man to Sick and Hurt, 24 June 1771.

⁴⁶ Ibid.

Cauldwell immediately wrote to Admiral Man firstly to apprise him of the clash between Coltart and Grant's steward and secondly that he and his lieutenant and surgeon paid a visit to the hospital to investigate Coltart's allegations. According to their survey, they found the claims made by the surgeon to be true and required immediate redress.⁴⁷ In spite of the surgeon's complaints and the captain's survey of the conditions found at the naval hospital being forwarded to both the Admiralty and the Sick and Hurt Board, Grant was allowed to continue with his contract.

While Man remained at Barbados, Coltart continued to voice his opinion about the contractor's dreadful performance and in January 1772 wrote to Captain Peter Clark, the senior officer at Antigua, outlining the items the contractor undersupplied.⁴⁸ Clark ordered a group of lieutenants and surgeons on shore to take stock of necessaries at the hospital to verify Coltart's claims. Table 7.1 is the list of the items inspected and the number of each item found which was compiled by the reconnaissance party.

Sacking Bottom Cradles	Forty-seven unserviceable and no more remaining
Coverlids	None
Blankets	Eight-four, none of which were given until this day
Sheets in pairs	One hundred, some unserviceable and new ones as per sample enclosed
Pillows	Ninety-two of which none were supplied until this day
Pillow cases	None
Bolsters	None
Table linen	None
Towels	None
Mattresses	Seven fit for use
Beds	Twelve fit for use
Chamber pots	None
Washing tubs	None
Necessary tubs	Two only, six more wanting
Brushes	None
Mops	None
Brooms	None
Soap	None
Cans	None
Platters	Not 1/3 of the number required
Spoons	Not 1/3 of the number required

Table 7.1 – Inventory of supplies and necessaries at Antigua hospital, January 1772⁴⁹

The above survey further emphasised the appalling conditions which the surgeon and the sick were forced to labour under. Grant was allowed time to put things right before another survey was made two months later.⁵⁰ This time the party was led by Captain Charles Douglas who brought with him a number of lieutenants and surgeons. During

⁴⁷ Ibid.

⁴⁸ TNA, ADM 97/86, Admiral Man to Sick and Hurt, 21 April 1772.

⁴⁹ Ibid.

⁵⁰ Ibid.

their survey, they concluded that Grant had done little to rectify any shortcomings. They reportedly found:

...everything there (to the exception of seven or eight hair bolsters) much in the same defective condition as has been represented to you by the report of a survey...by order of Captain Clarke of the *Kennington*. All the complaints made by Mr Coltart the surgeon and agent, I found to have been perfectly well grounded, and then totally unredressed...I found that money had at dry times been given to patients in lieu of meat, and sometimes pork, sometimes goat's flesh, instead of beef or mutton. These two last-mentioned species in general having been very bad – It had moreover been much the practice to serve out raw meat to patients – The consequence of which has frequently been, the selling thereof (when saleable) for rum – None of the things whereof to make cooling drinks viz. barley, currants or raisins, tamarind &c &c I find in the hospital.⁵¹

Since taking up the contract, Grant had the fortune of only having to procure provisions and necessaries during peacetime. If a war had been raging, the Admiralty and the senior men on station may have been more tolerant of a number of shortcomings due to the lack of available items or the effects of rapid inflation. Not being able to supply fresh food or bedding when trade markets were unimpeded by war damaged Grant's reputation with the navy. After two years of complaints from Admiral Man, the surgeon at Antigua as well as other senior officers on the station, Robert Grant were brought in for a meeting with the Sick and Hurt Board at their office in June 1772. During the meeting, he was read the letters forwarded to the Board from Antigua and was told that the complaints were too severe in nature to ignore. The Board not only dissolved his contract with them but advised that a mulct would be levied against him proportional to his failures at Antigua hospital.⁵²

Once Grant was dismissed, the navy had to speed up the process of determining what to do about the hospital at Antigua. Before the Admiralty or the Sick and Hurt Board received a report from the naval surveyor regarding Francklyn's buildings, disaster struck. On the 31st August 1772, a powerful hurricane devastated the Leeward Islands. By the time it hit, Admiral Man had been relieved on the station by Rear Admiral William Parry. Parry wrote to the Sick and Hurt Board describing the degree of devastation felt across the island, including the damage to Gilbert Francklyn's hospital. His observations are lengthy but worth quoting in full:

⁵¹ Ibid.

⁵² TNA, ADM 99/47, Sick and Hurt Minutes, 30 June 1772.

The naval hospital is entirely destroyed together with the cabins for the officers, those opposite for the contractor's steward, servants and stores, the surgeon's house and in short every building or out-house belonging to it, except a small stone cook-room, part of the oven and a part of the dispensary house, but in so bad a state as not to be by any means habitable. As the dispensary was not totally blown away I have had it surveyed, and in consequence of which directed the surgeon to give it up and take another...The medicines, instruments etc were all damaged and mostly lost...Two seamen, one white woman and four negroes were killed on the spot and buried amongst the ruins, and many more of the patients and contractor's servants are now laying in a deplorable situation from the cuts and bruises they received, several being received by the wind along with the ruins of the house to a considerable distance, for in a great measure the building may absolutely be said to have been blown away; there is not a stick standing. The surgeons and contractor have lost almost everything they had at the hospital, the dispenser escaped better at his house though greatly damaged was not totally blown down.⁵³

In order to restore a degree of care for the sick on shore at Antigua, Parry:

...directed a house that is generally used for the accommodation of the captains while their ships are heaving down to be repaired for their reception and the worst patients were immediately put into it, and the contractor hired a very large airy house in Falmouth, a small town about a mile and a half distant from hence, in which the remainder are, both were hardly sufficient to contain them, but at that time of distress no other houses were to be hired...As the greatest attention is ever due to the maimed and sick, the contractor, by my permission, has erected and is erecting buildings to hold the whole number on the [land between English and Falmouth Harbours] for it is extremely inconvenient both to the surgeons and the ships for them to be dispersed in different places, and indeed the hospital surgeons could not give them proper attendance, were they to have been continued in that state.

Parry realised this was only a temporary solution. A new naval hospital would have to be erected on shore as soon as possible to cater for the large number of sick men. Knowing the Admiralty would request a survey of potential sites, Parry:

...carefully examined the adjacent grounds and have weighted all the advantages and disadvantages which may attend the different spots, and after consulting with others and fully considering the whole, I am of opinion that the place in which the captain's house is erected is the most proper on account of the easy access to it and the airiness of the situation. The longest side opens to English Harbour and fronts that way which the trade wind constantly blows, and the opposite side fronts Falmouth Harbour and Bay, which is a considerable body of water; and

⁵³ TNA, ADM 97/86, Rear Admiral Parry to Sick and Hurt, 19 September 1772.

there is a sufficient quantity of land for all the purposes of a naval hospital.⁵⁴

The surgeon at Antigua also felt the effects of the hurricane and applied to the Admiralty for redress.⁵⁵ Coltart claimed that he lost all of his household furniture, wearing apparel and all his books and papers. He also maintained that his house was swept away and dashed down the rocks into the sea and since the storm, he had been forced to live outdoors, being exposed to the night air and the rains. In all, he calculated his losses at £600 local currency.⁵⁶ The Sick and Hurt Board were directed to determine what to do about Coltart's claim. The Board was suspicious about the extent of Coltart's claim and believed he misrepresented his hardships for financial gain. To verify their suspicions, the Board decided to review Coltart's spending at Antigua against his predecessor, Mr Manderstone, and the current surgeon at Jamaica, Robert Wood, in order to determine whether or not Coltart had been financially abusing the hospital.⁵⁷ The Board concluded that Manderstone had been paid £236-7s-3d for the cure of 633 men between 1768 and 1769. Wood had been paid a total of £332-12s-10½d for the cure of 1,155 men. Meanwhile, Coltart had been paid £618-13s-5¾d for the cure of 682 men between 1770 and 1771 (Table 7.2).

Hospital	Surgeon	Date	Number of Men Treated	Cost of Cure
Antigua	Manderstone	1768-1769	634	£236/7s/3d
Antigua	Coltart	1770-1771	682	£618/13s/5¾d
Jamaica	Wood	1770-1771	1,155	£332/12s/10½d

Table 7.2 – Comparison of Hospital Surgeon's Expenditures at Antigua and Jamaica, 1768-1771⁵⁸

It is clear from the figures that Coltart received the greatest sum of money in proportion to the number of men he treated. In those particular years of service, Robert Grant was the victualler to the hospital so it is not unreasonable to assume from the complaints logged by Coltart, Rear Admiral Man and other senior captains on the station that the surgeon was required to purchase the deficient items himself on the island at an inflated rate. The Board acknowledged that Coltart was forced to purchase medicines at Antigua, however the prices he paid and the amount consumed differed greatly from that of his predecessor Manderstone. Table 7.3 illustrates this variation in the consumption of Peruvian Bark, lint and tow alongside the number of patients each surgeon treated while Table 7.4 shows the

⁵⁴ Ibid.

⁵⁵ NMM, ADM/E/41, Admiralty to Sick and Hurt, 3 December 1772.

⁵⁶ Ibid.

⁵⁷ NMM, ADM/FP/15, Sick and Hurt to Admiralty, 18 December 1772.

⁵⁸ Ibid.

cost for these articles generated by the three surgeons.⁵⁹ Hospital returns from Antigua for that period do not exist and it is therefore difficult to ascertain whether or not Coltart treated a large number of fever patients which would have necessitated that volume of Peruvian Bark. The Board was likewise unsure if Coltart's expenditure for bark was overly excessive. They wrote:

In the article of Bark it is no easy matter to determine how much has been extravagantly demanded or bought, but we by no means think that so large a quantity could have been fairly administered, and are clearly of opinion that the greatest part of the amount of lint...[which] was purchased at Antigua was an unnecessary expense, for tow...Mr Coltart was supplied in a greater proportion than either of other gentlemen with whom his practice has been compared: indeed the whole of his issues of lint and tow cannot in our opinion by any wise reconciled to an economical or rational practice.⁶⁰

⁵⁹ Ibid.

⁶⁰ Ibid.

Surgeon	Time (between)	Peruvian Bark			Lint	Tow	Number of Patients				
		Gross	Pulverized	Tincture			Discharged Invalids or Unstable	Discharged Cured	Dead	Run	Remaining
Mr Coltart	19 Jan 1770 – 30 Jun 1772	150lbs	140lbs	12lbs	176lbs 5 oz	814 lbs 12 oz	193	628	50	5	11
Mr Wood	1 Jan 1770 – 30 Jun 1772	20lbs	15lbs	8oz	10lbs	224lbs	111	1281	146	50	99
Mr Manderstone	1 Jan 1768 – 31 Dec 1769	40lbs	58lbs	7lbs	14lbs	403lbs	30	538	56	5	23

Table 7.3 – Consumption of Peruvian Bark, Lint and Tow at Antigua Hospital, January 1768 – June 1772⁶¹

Surgeon	Price of Bark	Price of Lint	Price of Tow	Total
Mr Coltart	£181/18s/3½d	£113/1s/7½d	£30/5s/9½s	£325/5s/8½d
Mr Wood	£12/19s/-	£3/-/*	£5/12s/-	£21/11s/-
Mr Manderstone	£39/15s/-	£4/4s/-	£10/1s/6d	£54/0s/6d

Table 7.4 – Expenditure for Peruvian Bark, Lint and Tow at Antigua Hospital, January 1768 – June 1772⁶²

⁶¹ Ibid.

⁶² Ibid. *The price of lint purchased at Jamaica is lower due to the Negroes scraping the Lint from old sheets.

With Coltart's excessive spending and his claim for losses sustained in the hurricane, the Admiralty recommended he be removed from the position and superseded him with the surgeon from the *Somerset*.⁶³

Although the Sick and Hurt Board made a determination about the surgeon at Antigua, they had made little progress with deciding what to do about the hospital. The situation remained much the same since the hurricane destroyed Gilbert Francklyn's buildings in 1772. Sick men continued to be housed in temporarily erected facilities at two separate locations on the island.⁶⁴ Parry was not pleased with the new contractor, Mr Brymer, who had taken over when Grant's contract was terminated. It was Brymer's responsibility to victual the seamen at both locations; one close to Falmouth Harbour and the other in the ruins of the captain's house at English Harbour. At Falmouth, Parry claimed the contractor failed to supply his agreed items. In his report to the Sick and Hurt Board, he claimed:

...the sick have not any water to drink but what they fetch themselves, or hire negroes with a part of their allowance to bring it for them from a pond that is brackish and some distance from the hospital, their clothes washed but once since the first of the month, which was the time of their going to those quarters...They have been obliged to make their own beds, not having a nurse to do it or clean their wards...[The sick] have been served rum unmixed for want of water, owing to which they have been frequently drunk, and in all probability their cures greatly retarded, as many have relapsed when almost well, imagined by the surgeon to be occasioned by that irregularity...One of the sick has been forced to serve the provisions, there not being any steward. They also complain it is frequently three or four o'clock in the afternoon before they get their dinner...they had not any meat on Thursday or rum on Monday last...they are obliged to go in the heat of the sun to the pasture to drive the cattle in for slaughter...⁶⁵

The situation was not any better at the captain's house at English Harbour and indeed could have been perceived as worse. Parry reported:

...they likewise complain of the badness of the meat at times, once in particular it was boiled overnight and served the next day when it stunk to that degree, neither it nor the broth were eatable. When it rains they are up to their ankles in water, and their beds so wet they cannot lay in them; from appearance the house is in danger of falling every fiery breeze or hard squall being greatly damaged by the late hurricane. In two of the lower wards there is a window to leeward, in the other not any...the sick who are put there must suffer much for want of air, and both here and at Falmouth the cradles are greatly crowded...there are two black nurses (one only at present effective) there was a white woman but

⁶³ NMM, ADM/E/41, Admiralty to Sick and Hurt, 23 January 1773.

⁶⁴ TNA, ADM 97/86, Vice Admiral Parry to Sick and Hurt, 24 December 1772.

⁶⁵ Ibid.

the contractor gave her orders not to attend the sick...It appears that there was one old experienced nurse that the contractor turned away, although the surgeon assured him she was the only person in that station to be depended upon, and kept one that he had desired to be discharged as being unfit to perform the duty...The rum which by contract ought to be old is new, and very unfit for the sick...they are not allowed sugar to their gruels, rice, etc, although the surgeon has excused punch (which the contractor ought to furnish when he serves rum) to enable him to provide sugar for that purpose...⁶⁶

In July 1773, it seemed the Sick and Hurt Board and the Admiralty had experienced enough difficulty housing and victualling the sick and hurt seamen at Antigua because they agreed to accept a proposal and estimate for building a new hospital submitted by Nathaniel Watts, the Navy Board's surveyor. In his proposal, Watts suggested that the buildings be sufficient enough to house at least 100 men and designed in a similar fashion to that of Stonehouse hospital at Plymouth.⁶⁷ The erection of separate buildings rather than one large one, he believed, would provide a fresher flow of air throughout and would be capable of containing contagious diseases in independent wards. His original plan for the hospital layout with various outbuildings as well as the plan outlining the proposed locations (one location on Crown-owned land and one on Francklyn's land) were included in Watts' correspondence. Figure 7.2 shows the recommended layout of the hospital regardless of where it would eventually be built. The plan depicts four hospital wards capable of containing forty-eight sick men each, a guard building, surgeon's house, dispenser's house, platforms for cisterns and cook houses. In Figure 7.3, enlarged drawings of the proposed ward and the surgeon's and dispenser's houses are seen. Watts carefully surveyed the land belonging both to the Crown and to Francklyn and he was of the opinion that the best place to erect the new hospital was on the Crown's land where the hurricane-damaged captain's house stood. He opted for that location:

on account of the easy access to it, and to the airiness of the situation, the longest side opens to English Harbour, and fronts that way which the trade wind constantly blows and the opposite side fronts Falmouth Harbour and Bay, which is a considerable body of water, that there is a sufficient quantity of land for all the purposes of a naval hospital.⁶⁸

Moreover, that location [had] 'flat ground sufficient for erecting all the necessary buildings, and from its situation and form, may easily be enclosed, and that it has one advantage,

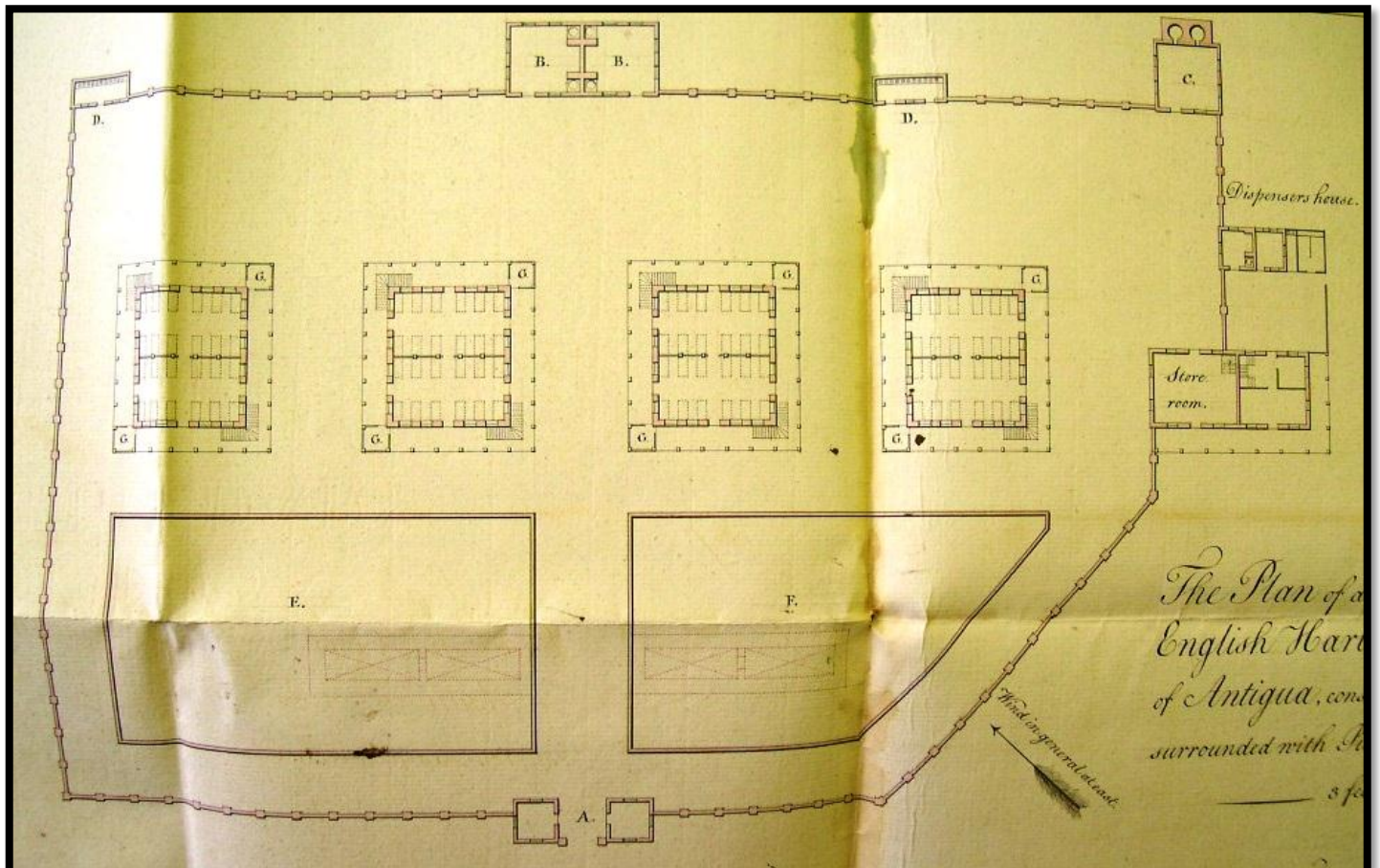
⁶⁶ Ibid.

⁶⁷ NMM, ADM/FP/16, Sick and Hurt to Admiralty, 23 July 1773. Stonehouse hospital was built during the Seven Years War on a 24 acre site on Stonehouse Creek. It was built around large quadrangles which were surrounded by detached ward blocks planned to prevent the spread of infection in the hospital.

⁶⁸ Ibid.

which Mr [Francklyn's] has not, viz easiness of access.' Francklyn's land was farther up along the hillside away from the naval dockyard. Watts felt that:

his land is of so long rugged and steep an ascent on every side, that no good road can possibly be made up it, and if there could the first shower of rain which falls very heavy there, would, from the very make of the hill, entirely destroy it, that sick men have been frequently fatigued and exposed for a long time, to the excessive heat of the sun in going up.⁶⁹



KEY

- A. Gateway and two Lodges for a Porter and Guard
- B. Cook room and Wash house
- C. Bake house
- D. Necessaries
- E. Platform and Cistern to contain 153 Tons
- F. Platform and Cistern to contain 153 Tons
- G. Rooms for nurses

Figure 7.2 – Proposed layout of Antigua Hospital, 1773⁷⁰

Erecting a hospital on an island prone to destructive hurricanes meant that Watts recommended constructing each ward of brick '46 feet in length and 40 feet in breadth divided on each floor by a row of pitch pine pillars to support the floor above' for a total

⁶⁹ Ibid.

⁷⁰ Ibid.

cost of £2,886-17s-6d local currency, equal to £1,737-10s sterling.⁷¹ The wards were designed to contain twenty-four cradles for the use of the sick on both floors allowing for three feet of space in between them, giving sufficient room to afford the men the best chance for rehabilitation.

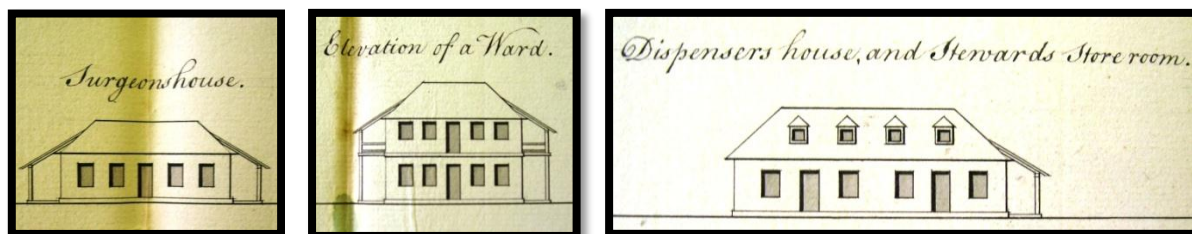


Figure 7.3 – Proposed Ward, Surgeon’s House and Dispenser’s House, 1773⁷²

Dwellings for both the surgeon and dispenser were included in Watts’ estimate. The former’s house was proposed to be one storey only, 45 feet in length and 30 feet in breadth. The layout included a ‘parlour, a passage and two chambers’ while in the case of the latter’s dwelling, Watts proposed for it to adjoin the steward’s storeroom totalling 60 feet in length and 27 feet in breadth. The plans included a cook room, a wash house, a bake house, two lodges for a porter and a guard, a fence around the yard and two platforms and cisterns which were of vital importance.⁷³ There was no source of fresh water at Antigua, and if the Crown was prepared to spend a large sum of money to construct a permanent hospital, then the erection of cisterns to supply the hospital with water was an absolute necessity. Watts recommended building rather large tanks and estimated the amount of rainwater that could be collected annually assuming the island received fifteen inches during that time (Table 7.5).⁷⁴

Location	Amount of Water (in tons)
Area of the platform on the right hand at the entrance	334 Tons
Area of the platform on the left hand at the entrance	421 Tons
Roof of all four of the hospital wards	516 Tons (129 Tons each ward)
Roof of the surgeon’s house	86 Tons
Roof of the dispenser’s house	88 Tons
Roofs of the two lodges	17 Tons
Total	1,462 Tons per annum

Table 7.5 – Amount of Rainwater Proposed to be Collected at Antigua Hospital⁷⁵

⁷¹ Ibid. This was the estimate for erecting the wards only, not for the erection of the entire hospital

⁷² Ibid.

⁷³ Ibid.

⁷⁴ Ibid.

⁷⁵ Ibid.

For all of the abovementioned buildings, fences and water collection structures the total expense to the Crown to erect a new hospital at Antigua was estimated at £14,681-13s-1d sterling.⁷⁶ A breakdown of the estimation is shown in Table 7.6.

Once they reviewed the plans and estimates, the Sick and Hurt Board forwarded them to the Admiralty in July 1773. They heard no response and after five months, the Board resubmitted their request to build the hospital. Finally in January 1774 the Sick and Hurt Board received an answer and the Admiralty's response was not altogether surprising. The estimate for building the hospital on Crown-owned land was considerable and although there was a definite need for it, the Admiralty thought it best to examine all potential sites and determine if the work could be done cheaper. They directed the Board to confer with Francklyn to establish the cost of purchasing ten acres of his land for the erection of the hospital.⁷⁷

Building or Structure	Sterling
One of the Four hospitals	£1,737/10s/-
One other Ditto	£1,737/10s/-
One other Ditto	£1,737/10s/-
One other Ditto	£1,737/10s/-
Dwelling House and Offices for the surgeon	£1,207/1s/-
Dwelling House and Offices for the Dispenser & Store Room	£1,056/14s/9d
Cook room and Washhouse for the hospital	£363/12s/9d
Bake house	£218/3s/7d
Two Necessaries	£197/11s/6d
The Fences	£1,133/6s/8d
The Two Lodges and the Gate at the Entrance	£219/7s/10d
The Platform, breastwork and Cisterns on the right	£1,615/15s/-
The Platform and breastwork on the left side only	£584/17s/-
The Cistern to Ditto only	£1,135/3s/-
Total	£14,681/13s/1d

Table 7.6 – Estimate of the Erection of a naval hospital at Antigua, 1772

Watts submitted a second proposal for erecting wards and the necessary out-buildings using some of the ruinous structures standing on Francklyn's land while also erecting new ones. A chart of the two proposed areas was forwarded to the Sick and Hurt Board and is shown in Figure 7.4. Watts' estimate for building the hospital on Francklyn's land totalled

⁷⁶ Ibid.

⁷⁷ NMM, ADM/E/41, Admiralty to Sick and Hurt, 11 January 1774.

£9,959-0s-9½d, a difference of over £4,700 from the previous estimate.⁷⁸ However, the second estimate did not include the cost of purchasing ten acres of land from Francklyn. To establish the cost of acquiring the land, the Sick and Hurt Board called on the proprietor to attend their office for a meeting to discuss the terms under which he would agree to a sale. He was receptive to the suggestion that the Admiralty might purchase his land, but he was not able to provide definitive price at the meeting.⁷⁹ He wrote to the Sick and Hurt Board a week later after he determined ‘that he could not abate of £750 sterling for the purchase of so much of the land as [the Board] wanted, together with the tank and all the erections on the proposed lot.’⁸⁰

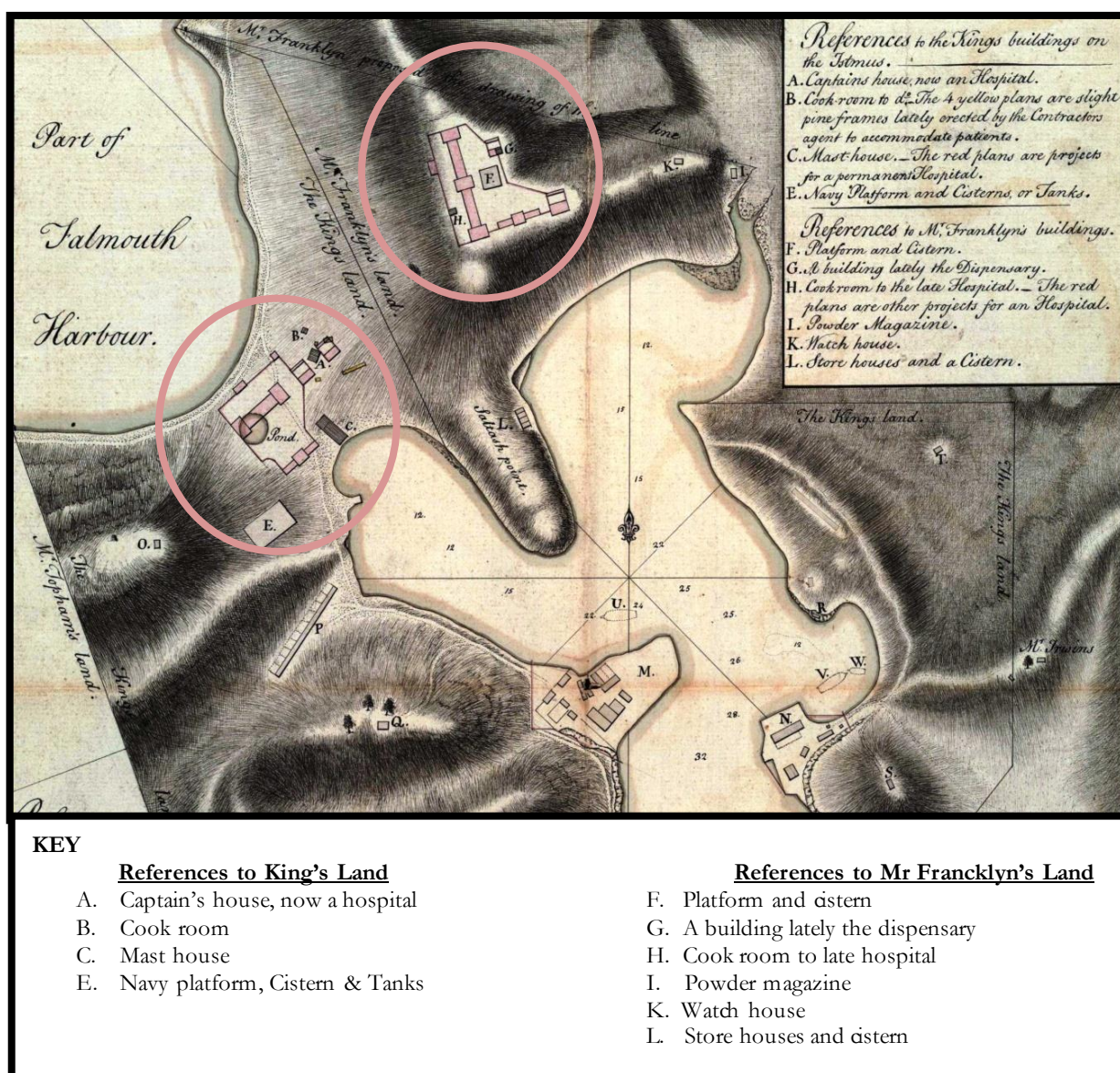


Figure 7.4 – Two Proposed Locations for the Naval Hospital at Antigua, 1772⁸¹

⁷⁸ NMM, ADM/FP/16, Sick and Hurt to Admiralty, 23 July 1773.

⁷⁹ TNA, ADM 99/49, Sick and Hurt Minutes, 25 January 1774.

⁸⁰ TNA, ADM 98/10, Sick and Hurt to Admiralty, 28 January 1774.

⁸¹ NMM, ADM/FP/16, Sick and Hurt to Admiralty, 23 July 1773.

The Board had to consider both proposals; go ahead with the erection of the hospital on Crown-owned land or purchase ten acres and the dilapidated buildings from Francklyn in order to redevelop the hospital on its most recent site. Both options had positive and negative elements. Building on the Crown's land meant the men were in an airier and more convenient location due to its close proximity to the dockyard. The downside was the extremely costly estimate of having to build a hospital from scratch. If the navy opted for Francklyn's land, the cost was considerably cheaper and included a number of pre-existing structures. Despite being more economical, there were drawbacks to building on his property. There were no passable roads from the dockyard which meant sick men would experience an arduous journey up the hill to the hospital. And since the navy would not own the surrounding acreage, there was a possibility that Francklyn could sell his remaining land to dubious individuals who could potentially erect punch houses in the immediate proximity. Following their deliberations, the Board recommended that they should go ahead with the purchase of Francklyn's land in order to erect the hospital.⁸² They also suggested that the hospital be made up of five individual wards instead of four wards which was previously suggested by Watts because of the greater availability of space.

Two and a half years after their initial order to begin building a naval hospital at English Harbour, the Admiralty once again gave an order for it to be built, only this time they ordered it to be built on Francklyn's land.⁸³ Their instruction was for:

the 5 hospital buildings with the necessary erections, and two additional buildings or more if necessary, together with airing ground, burial ground and a road from the harbour...[and] also for the purchase of the tank and the out buildings which remain standing upon the spot; and to pay him his demand of £750.⁸⁴

The Sick and Hurt Board signed the contract with Francklyn and his solicitor in July 1774.⁸⁵ Francklyn (who was then returning to Antigua) was instructed to liaise with Watts and an independent surveyor at Antigua to select the most appropriate tract of land on which to build the hospital and to lay out a road with 'the most easy and gentle ascent' from English Harbour.⁸⁶

Hostilities with the American colonies began to escalate from the time the contract was signed with Francklyn and the government turned their focus to North America. Since

⁸² TNA, ADM 98/10, Sick and Hurt to Admiralty, 28 January 1774.

⁸³ NMM, ADM/E/41, Admiralty to Sick and Hurt, 24 June 1774.

⁸⁴ Ibid.

⁸⁵ AL, 1998.46, Articles of Agreement for the purchase of Mr Franklyn's Land at Antigua, 5 July 1774.

⁸⁶ TNA, ADM 98/11, Sick and Hurt to Admiralty, 14 July 1775.

Francklyn's arrival back at Antigua, no progress was made in relation to selecting ten acres of his land nor had the naval surveyor laid out a road from English Harbour. As Watts had not completed the latter duty, this meant that the navy did not have use of the remaining buildings on his land. For the time being, the sick men remained housed in the dilapidated hurricane-damaged captain's house and in temporary tents erected in the general vicinity of English Harbour, a situation that had been practiced since August 1772. It was no surprise that Vice Admiral Young, who was now in charge of the Leeward Islands station, wrote to the Sick and Hurt Board in October 1775 requesting that better provisions be made for the accommodation of the sick seamen at Antigua.⁸⁷

The hospital situation became more pertinent when in July 1776, Vice Admiral Howe, who had recently been appointed commander of the North American squadron, wrote to Young to apprise him of an expected increase in the number of men in the Leeward Islands.⁸⁸ Howe anticipated sending a large number of sick men to the West Indies to recuperate. Preparations were necessary at Antigua to ensure that any number of sick and hurt seamen could be properly tended to. Young turned to Francklyn for assistance. The latter was able to offer the Vice Admiral a storehouse he owned which was capable of accommodating thirty-six patients at a rate of £190 sterling per annum.⁸⁹ Although renting Francklyn's storehouse did alleviate some pressure, it was not enough to cope with the number of men put on shore. Young was forced to write to the Sick and Hurt Board regarding:

...the ruinous state of the present temporary buildings made use of as hospitals for the reception of His Majesty's sick and hurt seamen; and of their insufficiency to contain the number of sick likely to be put on shore; this has been very fatally experienced in the course of the present year, when at times there has been upwards of 200 sick people on shore from the different King's ships at English Harbour, either belonging to the American squadron; or that employed under my command, and no possibility of procuring proper accommodations for more than half the number, so that many were obliged to be kept in tents in the fields, which has occasioned a very great mortality among them; notwithstanding, I believe everything in the power of the surgeon and his assistants were done for their relief; and indeed I think it very [probable] the like calamity may happen another year; unless you forthwith set about building the new naval hospital intended for the accommodation of the King's sick and hurt seamen at this place; which after this representation; I flatter myself you will immediately order to be done.⁹⁰

⁸⁷ TNA, ADM 98/11, Sick and Hurt to Admiralty, 8 December 1775.

⁸⁸ TNA, ADM 97/87, Vice Admiral Young to Sick and Hurt, 27 July 1776.

⁸⁹ NMM, ADM/FP/19, Sick and Hurt to Admiralty, 20 September 1776.

⁹⁰ NMM, ADM/FP/20, Sick and Hurt to Admiralty, 25 June 1777.

Nothing was done with regard to erecting the new hospital until after the French joined the war on the American side in early 1778. Once the French were involved, the conflict expanded from the small arena of North America to an international affair. It was paramount for the navy to ensure that operations at each station were capable of handling an influx of ships and seamen. The Admiralty wrote to the Sick and Hurt Board acknowledging that they had ‘resumed the consideration of the expediency of building an hospital at Antigua for the reception of sick and hurt seamen and marines...which...hath been purchased by you of Mr Gilbert Francklyn.’⁹¹ The Admiralty amended their original order as they felt only three of the five wards were required at present. Despite being at war, they expected, within all reasonableness, to be able to procure materials for erecting the hospital to the outlined specifications for roughly the same cost estimated four years prior.⁹² Realising there was a lapse in time since the estimate was drawn up and that a war was underway, the Board suggested the cost would be much higher. They said:

[That] the general alteration of circumstances since the date of our said [estimate] which must greatly affect the prices of many of the materials proposed to be used in erecting the said buildings, and which may render it now impracticable to procure some of them on the island at least in such quantities as may be wanted.⁹³

To ascertain the difference in cost and the availability of materials, the Board requested Watts make a list of necessary alterations to the original hospital design and a note on ‘what materials it will now be most eligible to substitute in lieu of others which cannot be had.’⁹⁴ Due to circumstances caused by the American War, the Admiralty was informed that the hospital was unable to be built at the same price as the estimate supplied by the surveyor in 1772.⁹⁵

By the time the Board’s request to recalculate the works at Antigua reached Watts, Admiral Sir George Rodney had taken command of the Leeward Islands squadron. Rodney was not new to the West Indies. He had served as commander-in-chief of the Leeward Islands station from 1761 to 1763 and in the same capacity at Jamaica from 1771 to 1774. When he arrived in the Leeward Islands in 1779, he was frustrated with the organisation of the service at Antigua. He believed that Antigua was not ideal to serve as the principal island and general rendezvous point for the squadron. In Rodney’s view, islands such as Barbados and St Lucia had become more strategically important due to their geographic locations and therefore Antigua’s dockyard and services became, to his mind, less

⁹¹ NMM, ADM/E/42, Admiralty to Sick and Hurt, 21 January 1778.

⁹² Ibid.

⁹³ TNA, ADM 98/11, Sick and Hurt to Admiralty, 11 February 1778.

⁹⁴ Ibid.

⁹⁵ TNA, ADM 98/12, Sick and Hurt to Admiralty, 22 April 1780.

necessary. He was driven by the idea that both Barbados and St Lucia deserved hospital facilities rather than Antigua and as far as the hospital at Antigua was concerned, Rodney persuaded the Board to delay its construction. Commissioner Laforey, who was the Navy Board's representative at Antigua, was not pleased by Rodney's suggestion to postpone the construction of the hospital at English Harbour. Writing to Charles Middleton in 1780, Laforey said:

I am not yet, thank God, sufficiently divested of humanity to see with indifference numbers of men lost for want of common accommodation, and the skill and attention of a most able surgeon frustrated through want of even covering from the inclemency of the weather to his patients. What can induce Sir George Rodney to set his face against the erecting an hospital here, which is already framed and prepared at home by the sick-and-hurt board, and only waits his order to contract here for the raising of, can only be accounted for by his unaccountable partiality to St Lucia, which, if he ever reflects, the effects of the hurricane in the port, and of its climate among the troops and ships must entirely destroy his predilection for. But what is very extraordinary, at the time he is declaring this place improper for the reception of the sick of his fleet, he has been constantly sending them all here. I cannot quit this subject until I have recommended to your notice and protection, if ever he comes within your department, Mr James Young, the surgeon of our nominal hospital, or more properly, of our sick tents...I ground my report of him upon his great ability, his indefatigable attention to his business...⁹⁶

The commissioners agreed with Rodney and felt that the lack of procurable materials and the reduced service at that island (due to Rodney's orders) were reason enough to postpone the hospital's construction, although they left open the possibility of building it in the future should Antigua once again regain its strategic significance.⁹⁷

At the conclusion of the American War of Independence, discussions on the utility of a hospital at Antigua were once again initiated. The hospital's surgeon, James Young, was instructed to make a publication for the submission of tenders from individuals on the island who were able to erect buildings to the required plan and specifications.⁹⁸ The surgeon was labouring under harsh conditions and was feeling the negative effects of working at the dilapidated hospital. He was aware that the ten acres of land purchased from Gilbert Francklyn had recently been plotted out and the final design of the hospital had been approved by the Admiralty. He followed the commissioners' order to receive quotations to undertake the building, although a substantial amount of time passed without the navy accepting one. Young felt that he ought to create a more convenient situation for

⁹⁶ Sir John Knox Laughton (ed.), *The Barbam Papers*, vol 2 (London: Navy Records Society, 1910), pp. 109-112. Letter from Commissioner Laforey to Charles Middleton, 20 December 1780.

⁹⁷ TNA, ADM 98/14, Sick and Hurt to Admiralty, 10 December 1781.

⁹⁸ NMM, ADM/FP/28, Sick and Hurt to Admiralty, 28 October 1785.

himself because, until that point, he had been residing in one of the buildings destroyed by the hurricane over a decade earlier. Following that particular storm, the surveyor and the master builder condemned the building he now occupied and Young complained that it had now 'become so decayed and ruinous that it is totally uninhabitable and even pernicious to health.' The building was also 'liable to be thrown down' meaning he was 'obliged to desert it upon every appearance of bad weather and as there is no house nearer than Falmouth to hire for a dwelling house it will be utterly out of my power to undergo the fatigue of carrying on the duty of the hospital at that distance.'⁹⁹ Since his living situation had become so unbearable, he coordinated the erection of a surgeon's house according to the agreed specifications laid out by the naval surveyor in 1772 on the ten acres of land Francklyn sold to the navy. When he erected the house, Young took care to utilise the same dimensions and building materials and built it using his own funds.¹⁰⁰ After the house was completed, Young requested to be reimbursed the money that the government expected to spend for the same purpose.¹⁰¹ The Board and the Admiralty agreed that a survey of the work should be made and if Young's expenditure did not total more than the estimate, then he was entitled to a reimbursement.¹⁰²

With the surgeon now properly accommodated in a purpose-built house on the land, it was time for the Crown to focus on the accommodation for the sick. At that point, the former captain's house was still used to hold twenty-seven cradles for the sick but was not advised for further use following an inspection by the naval surveyor. As for the remainder of the buildings in use, they were in no better state:

The building called the 'new ward' [was] capable of containing fourteen cradles, a slight building, the piazzas much decayed and dropping, the posts that support them being decayed in the ground; also the doors and windows, being much shattered and broken, the whole will require a thorough repair. The building called the 'small ward', capable of containing twelve cradles, require repair in the floor. The doors and windows also being much decayed and shattered require a thorough repair or to be entirely new. The building called the 'cabins', capable of containing twenty cradles, require repair in the floor, it being decayed and sunk in several places, the doors and windows also being much decayed and shattered, will require a thorough repair. The necessaries, cook room and other offices being much decayed and broken, particularly the necessaries, will all require great repair.¹⁰³

⁹⁹ Ibid.

¹⁰⁰ Ibid.

¹⁰¹ Ibid.

¹⁰² NMM, ADM/FP/33, Sick and Hurt to Admiralty, 19 March 1790. NMM, ADM/E/44A, Admiralty to Sick and Hurt, 28 May 1790.

¹⁰³ NMM, ADM/FP/28, Sick and Hurt to Admiralty, 28 October 1785.

Watts forwarded a map of the northern end of English Harbour to the Admiralty demarcating the ten acres sold to the navy (Figure 7.5). It also contains the road created to connect the naval dockyard with the future hospital. Buildings which were currently used as the hospital including the dilapidated captain's house are shown to the southwest of the ten acres. Despite the land and road being ready for development, a further three years passed before the Admiralty finally agreed to erect two of the five wards at English Harbour. The War of American Independence was now over and the feeling was that five hospital wards were unnecessary. With a reduced number of ships on the station, the original plan was no longer crucial to the service. Another way the Crown planned to save money was to not erect the entire wall surrounding the buildings. As per a suggestion from Commodore Parker, the wall was replaced by a ditch filled with prickly pear bushes which he felt provided the same protection against desertion.¹⁰⁴ The commissioners were not familiar with prickly pear bushes, however they were happy to approve their use as long as it answered the purpose and 'if it will save expense there can be no objection to it.'¹⁰⁵ It seemed that the Admiralty finally identified an opportune time to erect the naval hospital at Antigua and they wrote to the Navy Board in 1788 instructing them to carry out the necessary works. Work began on the hospital right away and was completed by March 1790.¹⁰⁶

It seemed the opening of the new hospital could not have come at a better time for the navy. Once again the country was at war with France and the West Indies were a major theatre of war. During the war, English forces wasted no time in invading Hispaniola in 1793, they took Martinique in February 1794, followed by the taking of St Lucia and Guadeloupe in April of that year. Antigua proved advantageous during these campaigns because of its strategic location in the West Indies. Ships in the Leeward Islands squadron frequented the island for repairs and to utilise other facilities including the hospital. Significant numbers of men went ashore to convalesce before returning to service. Without the newly-built hospital available at English Harbour, it is highly probable that a greater number of seamen would have died or been invalided.

¹⁰⁴ NMM, ADM/E/44A, Admiralty to Sick and Hurt, 16 November 1787.

¹⁰⁵ TNA, ADM 98/15, Sick and Hurt to Admiralty, 28 December 1787.

¹⁰⁶ NMM, ADM/FP/33, Sick and Hurt to Admiralty, 19 March 1790.

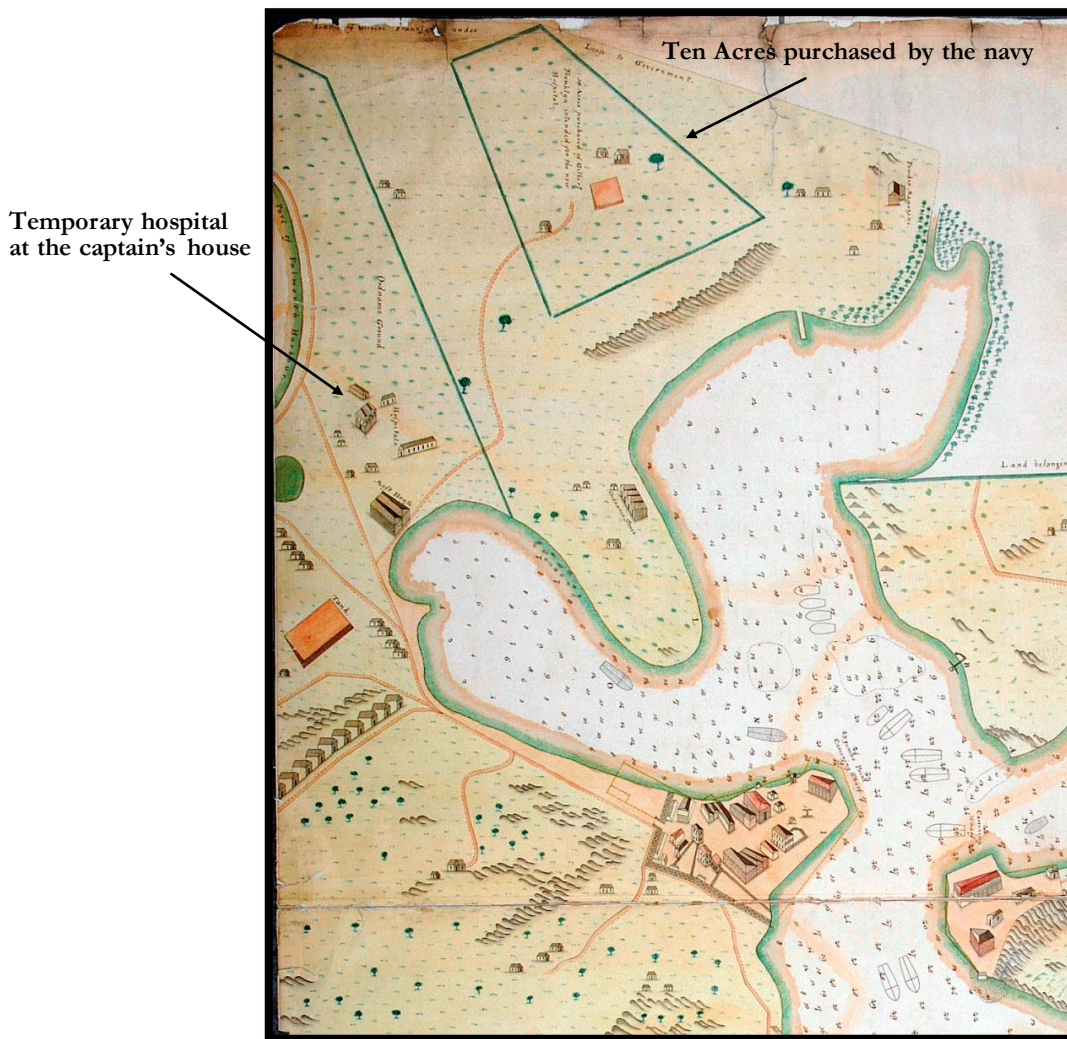


Figure 7.5 – Ten Acres Allocated for the New Hospital at English Harbour¹⁰⁷

Records of the exact numbers of sick men accepted at the previous hospital provided by Gilbert Francklyn in the 1760s and 1770s do not survive. From the 1790s, the hospital muster books from Antigua provide insight into the types of sickness crippling the seamen as well as identifying how many of them died from their illness. However, the muster books between 1790 and 1794 do not specify illnesses, only the number of men admitted to hospital every month and the number who were discharged, those that died and those that deserted. Table 7.7 illustrates the number of men admitted to Antigua hospital between those dates. It is interesting to note the sharp rise in the number of men put

¹⁰⁷ AL, VZ 10.48, A survey of English Harbour, Antigua ordered by Commissioner Laforey in 1783.

ashore in 1793 which coincided with a well-documented outbreak of fevers in the West Indies.¹⁰⁸

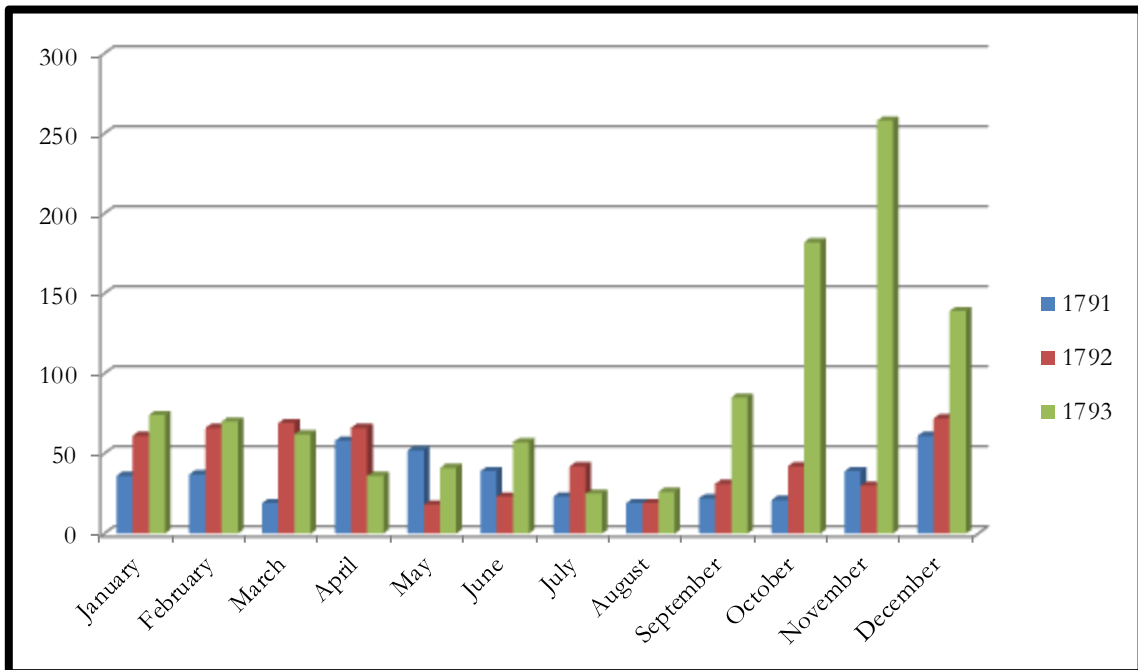


Table 7.7 – Number of Sick Men at Antigua Hospital, 1791-1793¹⁰⁹

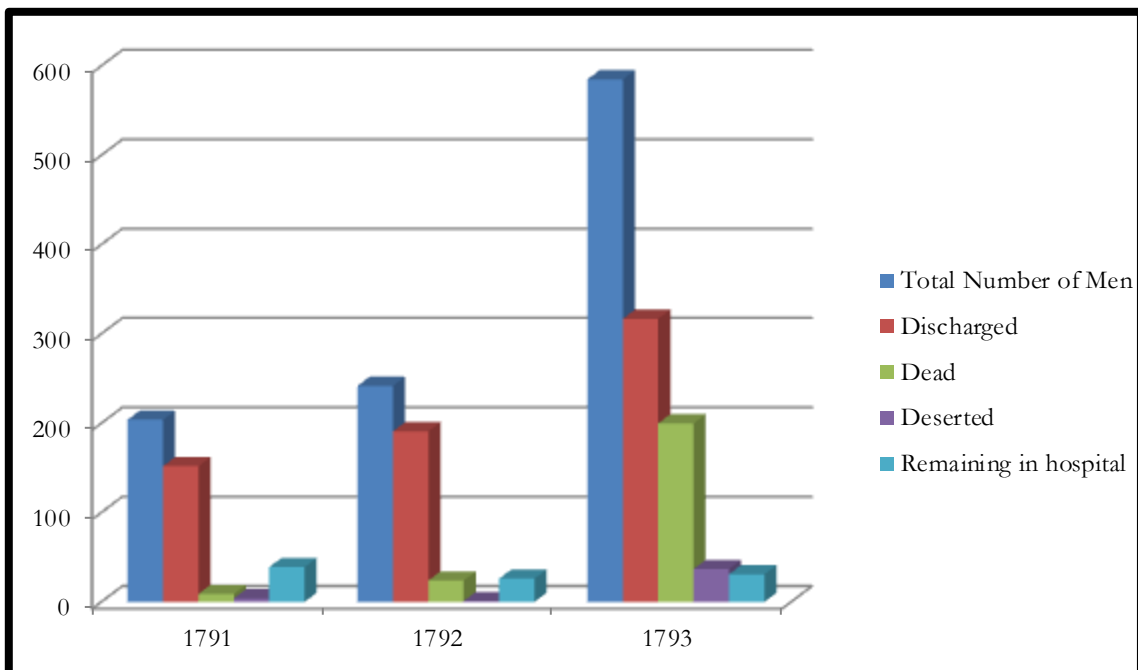


Table 7.8 – Number of Seamen Discharged, Dead or Deserted from Antigua Hospital, 1791-1793¹¹⁰

Although specific diseases were not recorded in the hospital muster book from 1791 to 1793, the fate of the seamen is registered. The majority of men sent to Antigua hospital

¹⁰⁸ See Chapters 2 ‘Disease and Chapter 4 ‘Health of British Sailors Afloat in the West Indies’ for documentation of the fever outbreak of 1793-1798.

¹⁰⁹ TNA, ADM 102/5, Hospital Muster Book from Antigua, 1791-1793.

¹¹⁰ Ibid.

were discharged, however the muster does not indicate whether or not the seaman was discharged back to service or discharged invalided (Table 7.8). With the exception of the fever outbreak in 1793, the mortality rate is relatively low. In fact, in 1791 out of a total of 204 men sent to the hospital, only nine died and four deserted. The figures for 1792 are not dissimilar. Of the 242 men sent to the hospital, only twenty-four died and one deserted. Once the fever outbreak spread to the ships on the Leeward Island station, there was a sharp increase in both the number of men admitted to hospital and the mortality rate. A total of 585 men were treated at Antigua hospital in 1793, of which 200 died, mainly from the symptoms of yellow fever.

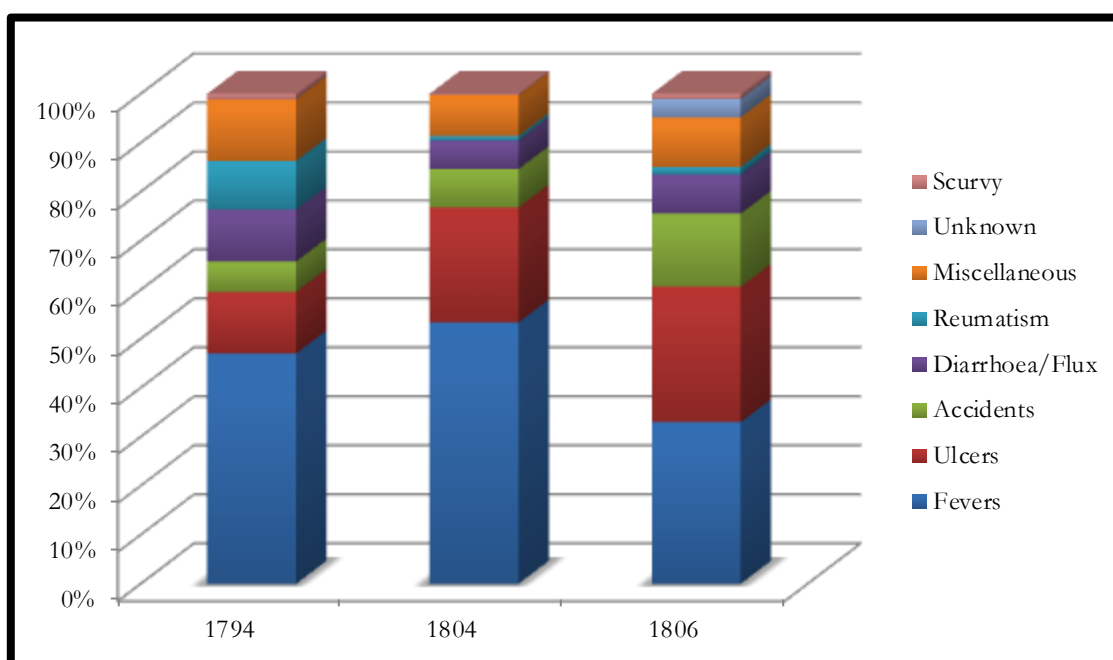


Table 7.9 – Breakdown of Diseases Afflicting Men at Antigua Hospital, 1794-1806¹¹¹

Figures from 1794, 1804 and 1806 (and beyond) were submitted via quarterly hospital muster books. They contain the name of each man brought ashore for care at the hospital along with their ship's name, their age and the date they came ashore. More importantly, listed with each man is a description of their illness. Using the information about their diseases, an analysis can be carried out in order to identify which diseases were most prevalent in the Leeward Islands during the late eighteenth and early nineteenth centuries. It is clear from Table 7.9 that in 1794, the outbreak of fevers in the West Indies hampered the health of seamen in that region, although the percentage of fever patients in the hospital in 1804 is slightly higher. Once the outbreak subsided, fever occurrences reduced slightly and as had been the case at Barbados, ulcers became more prevalent and in 1806, the number of fever patients and ulcer patients were almost equal.

¹¹¹ TNA, ADM 102/6, ADM 102/7, ADM 102/8, Hospital Muster Book from Antigua, 1794-1806.

Hospital muster books also contain data concerning the fate of each seaman. An entry after each name indicated whether a man was discharged (either back to service or invalided), deserted from the hospital or if he died while receiving treatment. Sick men who were sent to Antigua hospital had a reasonable chance of survival, even after the turn of the century when war was raging. According to the figures in Table 7.10, the mortality rate remained fairly low and averaged roughly 10 per cent of the men sent to hospital. The overwhelming majority of the deaths continued to be fever-related and only a handful of men died from a different disease or injury.

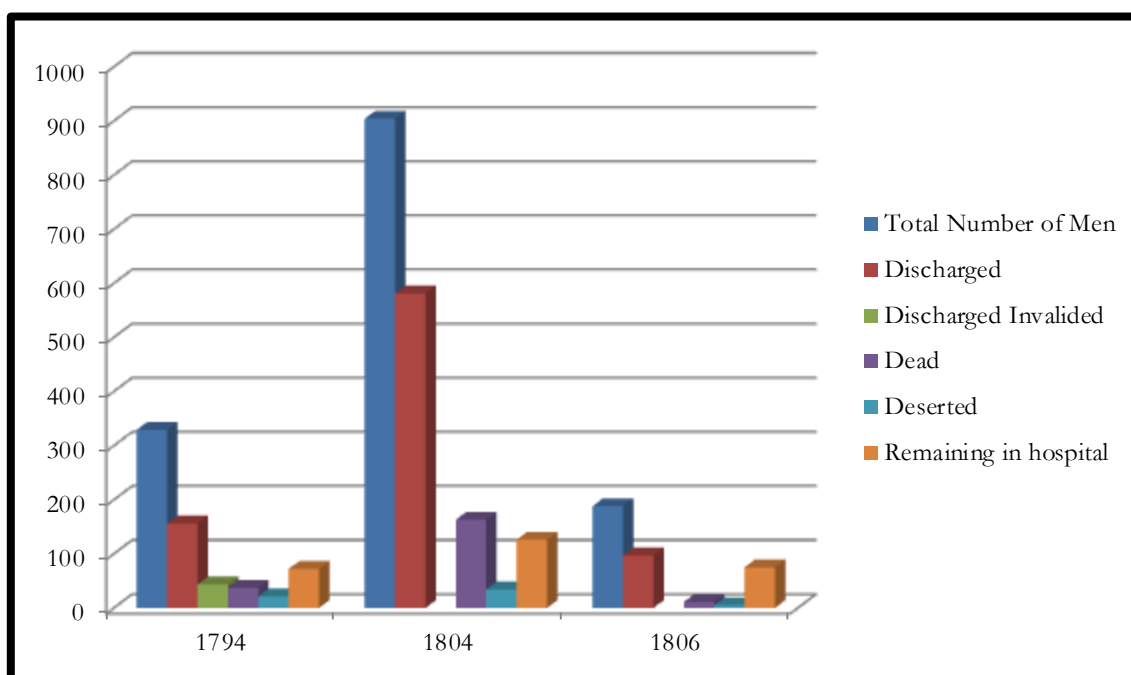


Table 7.10 – Number of Seamen Discharged, Dead or Deserted from Antigua Hospital, 1794-1806¹¹²

Conclusion

The development of Antigua naval hospital was a lengthy process, spanning the better part of twenty years. During the delay, officers and surgeons serving on the Leeward Islands station continually complained about either the appalling service provided by contractors or the ruinous state of the various buildings used for the reception of sick men. That is not to suggest that the complaints fell on deaf ears, for, on a number of occasions, both the Sick and Hurt Board and the Admiralty deliberated the erection of a hospital and even went as far as ordering its construction at one point. Financial and military motivations prevented it from moving forward, and the alternative situation remaining in operation at Antigua did nothing to encourage the recuperation of sick men. Prior to the outbreak of

¹¹² TNA, ADM 102/6, ADM 102/7, ADM 102/8, Hospital Muster Book from Antigua, 1794-1806. Discharge figures for 1804 and 1806 do not specify whether or not the men were invalided. Therefore all men listed as 'discharged' are lumped into the 'discharged returned to service' category.

the French Revolution, the navy managed to complete construction and sick seamen were finally able to be housed in a purpose-built facility which was properly suited to their requirements. The case study into the development of the Antigua naval hospital demonstrates the Admiralty's escalating preference for handling the care of their own sailors rather than trusting it to either public houses dispensing quantities of liquor or dubious contractors who were at time incapable of procuring provisions and necessaries. By evolving in this way, it is a clear indication that the navy recognised that healthy seamen, especially those serving in the West Indies, were indispensable.

Conclusion

This thesis has examined the provision of medical care for seamen in the West Indies between 1770 and 1806. Disease in the eighteenth century killed more seamen than naval battles and job-related injuries combined. Numerous historical sources suggest that the West Indies, in particular, was the unhealthiest environment of any of the British colonies and that sending sailors there was often a death sentence. While disease did affect a number of seamen in that region, it certainly did not disrupt service to the extent suggested in modern sources. The exaggeration of sickness and mortality figures are largely the result of two factors. The first was the assumption that a handful of voyages which experienced high mortality rates are indicative of the broader picture of health in the West Indies. These voyages were generally ill-equipped and required seamen to spend more time on shore resulting in severe losses. Mortality figures from Vernon's campaign at Cartagena were extremely high, while figures from the Grey-Jervis joint expeditionary force also demonstrated atypical losses. These figures are extraordinarily high and are exceptional cases and in no way denote the true state of men in the West Indies during that period. The second was the assumption that letters generated by naval officers concerning the unhealthy state of particular ships represented squadrons as a whole.

A large number of seamen were required to serve in the West Indies so as to provide essential protection for England's lucrative trade market. In order to manage this protection, the navy enhanced their logistical support network in that region which included constructing dockyards at both Jamaica and Antigua and to a lesser extent they established on shore facilities at Barbados and other West Indian islands. The two most vital possessions from the navy's point of view were Jamaica and Antigua. Jamaica proved a strategic location for launching operations against the Spanish colonies while Antigua was better suited for molesting French trade due to its proximity to Guadeloupe and Martinique. With these bases so far removed from London, the Admiralty was obliged to develop a system for delivering stores and provisions to the squadrons in the West Indies. Amongst the transported stores were medicines and necessaries intended for use by surgeons who required them in order to combat a variety of diseases.

As well as shipping medicines and necessaries from London to the West Indies, the Admiralty endeavoured to control disease in the fleet by establishing a dedicated medical branch to oversee day-to-day operations. The Sick and Hurt Board was originally formed in 1664 during the Second Anglo-Dutch War in order to manage the health of naval seamen. Once war ceased, the Board was dismantled and their duties taken up by the Navy

Board. When war broke out again five years later, the Sick and Hurt Board was reassembled to perform the same duties as before. And so the cycle continued with regards to the Board's existence; reformed during times of war and disbanded during peacetime. The War of Jenkins' Ear brought about a change to the way the Board was organised. From 1740, it was established on a permanent basis and was allowed to continue serving the fleet once war was over. Although the commissioners had the opportunity and continuity in service to potentially develop medical systems, the men charged with the duty were essentially bureaucrats with no medical training. They were unable to make educated decisions regarding medicines and treatments and relied on independent bodies for advice. Institutions such as the Royal College of Physicians and the Company of Surgeons provided guidance on matters regarding treatment while the latter also performed the official examination of would-be naval surgeons because the Board was incapable of executing that function. The Board also depended on the Society of Apothecaries for advice on medicines required in the surgeons' chests as well as opinions on remedies proposed by members of the general public.

Once surgeons were successfully examined at the Company of Surgeons, they went to the Navy Board to obtain an appointment to a ship. They then became the responsibility of the Sick and Hurt Board and were issued with printed regulations instructing them how they were required to conduct medical services on board. Surgeons were expected to be relatively self-sufficient once they arrived at their ships as the Board was not medically trained and provided little practical advice. That all changed from the mid-1790s when the Admiralty recognised that the Board's reliance on independent authorities was impeding the latter's ability to perform their duties. At that point, the Admiralty began appointing naval surgeons as commissioners and anticipated they would be virtually self-sufficient. Among the new commissioners appointed was Gilbert Blane, former physician to Admiral Sir George Rodney, who had previously served in the West Indies. A number of significant changes to the way the Board was managed were enacted under his guidance, the most noteworthy being the discontinuance of surgeons' examinations formerly held at the Company of Surgeons. Blane and the remaining members of the Board felt that with their medical training and naval experience, they were better suited to judge the aptitude of candidates. This thesis demonstrates how having medically-trained commissioners meant that the way naval diseases were controlled was revolutionised. It shows the Board modified its opinion on treatment and found it necessary for the navy's surgeons to practice preventative medicine rather than solely focusing on treatments for already-sick men. If there were methods available for thwarting diseases prior to them taking hold of a

squadron, then it was the Board's duty to ensure these measures were taken. For instance, this thesis demonstrates that it was this new Board which oversaw the general issue of lemon juice in order to prevent scurvy erupting while also recommending that ships serving in tropical regions like West Africa and the West Indies to issue Peruvian Bark to men working on shore to prevent fevers. Despite the beneficial practices rolled out by the Board during the last decade of the eighteenth century, its financial reconciliation was in arrears and because of that, the Admiralty determined it was appropriate to transfer away the duties of that office to the Transport Board in 1806 and for the Sick and Hurt Board to be dissolved.

Even though the Board was able to combat a number of diseases during its existence, there were still a number of them which continued to impede the seamen's duties. In the West Indies in particular, illnesses were marginally more prevalent than on other naval stations and to make matters worse for naval commanders in that region, there was no reserve of seamen to replace those that died or invalided. Therefore it was vital to ensure the care men received in the West Indies, both on board their ships and on shore in hospital, was reasonable. During the course of this thesis, it was shown that the most common diseases affecting seamen in the tropics were fevers. Outbreaks of both malaria and yellow fever were reported throughout the eighteenth century with physicians and surgeons believing the cause for both ailments was bad air. Those airs came in a variety of manifestations; the putrid fumes rising from a foul bilge, the odours emanating from swamps and morasses and the land-sea breezes which carried in the moist cool air from the sea in daytime to be heated and largely expelled at night. According to figures in this thesis, it has been proven that of the two diseases, yellow fever did more damage to a West Indies squadron. Once there was a small outbreak among a handful of sailors, it quickly spread though the ships' companies and had the potential to wipe out a large number of men in a short time.

During the well-documented yellow fever outbreak from 1793 to 1798, an elevated number of seamen succumbed to the disease although mortality figures included in Chapter 4 confirm those numbers remained relatively minor. Malaria, to a lesser extent, concerned surgeons in the West Indies. It was not as deadly as yellow fever, although it still had the potential to kill seamen. The vital difference between it and yellow fever was that the former was preventable and treatable through the administering of quinine-based medicaments. Typhus fever also distressed seamen; however this type of fever was not centred round tropical locations nor was its' distribution based on mosquito vectors. The spread of typhus derived from the circulation of the body louse and was therefore generally associated with filthy, cramped living conditions on board ships.

Aside from fevers, surgeons were required to attend additional ailments. The most common of these discussed in this thesis were digestive and bowel complaints. Food storage and preservation in the eighteenth century was rudimentary meaning provisions were normally susceptible to heat and vermin infestation. Water was stored in a similar fashion and spoiled just as easily. These issues, coupled with the limited availability of fresh food, meant the seamen's digestive systems were vulnerable and they frequently went on the sick list complaining of diarrhoea, flux and dysentery. Of these diseases, diarrhoea was the most common and uncomplicated disease to manage, but if it remained untreated, it had the potential to evolve into flux or dysentery.

Although most contemporary naval medicine publications focus their attention on how scurvy negatively impacted the service, its reputation as the chief killer of seamen is grossly exaggerated. While it did debilitate ships' crews when fresh provisions were not available, it essentially weakened the men's immune systems sufficiently enough for them to become susceptible to other diseases. It was the subsequent diseases that brought death to those whose original complaint was scurvy. Seamen also suffered from ulcers, which were associated with scurvy and other dietary deficiencies, which hindered them from performing their duties. Aside from those prevalent diseases, seamen were prone to suffering from less common illnesses such as consumption (tuberculosis), dropsy (oedema), gravel, rheumatism, ruptures, asthma, debility, scrofula, pleurisy and apoplexy.

While some surgeons and physicians remained loyal to the teachings of Hippocrates and Galen, many began to subscribe to the medical Enlightenment: a period which saw a considerable shift in the way diseases were observed, diagnosed and treated. The former group opted to treat the sick according to the theory of the four humours and the medicines and remedies utilised by these men were based on that theory, meaning that most were inadequate. The latter group rejected the four humours theory, instead relying on their own observations and experimentation in order to treat diseases. As explored in Chapter 3, it was through trial and error that this latter group of surgeons were able to identify several effective treatments, although many times they were uncertain of the precise reasons why they were successful. For instance, it was determined that issuing Peruvian Bark to men suffering from all types of fevers relieved symptoms in a number of cases, which was particularly the case for Robert Robertson. Modern medicine has confirmed that Bark is a preventative as well as a cure for malaria; however it is ineffective in the cure of yellow fever or typhus. By the mid-1790s it was also realised that fresh

lemons, limes and oranges were vital to the suppression of scurvy, although the nutritional properties of ascorbic acid was not identified for over a century.

Another treatment that was advocated by the Sick and Hurt Board and reviewed in this thesis was portable soup. It was produced by boiling bones and the offal of oxen to make a broth to which vegetables were added. The broth was reduced and dried into small tablets which were easily transported on board ships. When men were put on the sick list with fevers, scurvy and digestive complaints the tablets were reconstituted in hot water and served as a soup. The tablets were so highly regarded that even after the general issue of lemon juice to treat scurvy was approved in the 1790s, portable soup was still distributed to ships in order to treat sick seamen. To a lesser extent other medicines were also sanctioned for the cure of diseases including elixir of vitriol which was initially thought to be effective against scurvy. But by the 1780s most surgeons agreed that although it was a useful remedy for other diseases, it certainly did nothing to relieve scurvy. Another medicine advocated by the Sick and Hurt Board which was widely popular was Dr James's Fever Powder. As its name implied, it was distributed to surgeons as a cure for all types of fevers. Its creator publicised that it was also useful in curing gout, rheumatism and even scurvy; however, its composition was such that it was rendered useless against the majority of illnesses.

As beneficial as a number of treatments the navy employed were, there were other factors contributing to the advanced state of seamen's health during the time period covered by this thesis. The disease ecology in the West Indies altered over the course of the eighteenth century leading surgeons and physicians to overestimate their successes when combatting the principal illnesses affecting naval operations. Between 1690 and 1770, yellow fever epidemics repeatedly appeared in the West Indies at a time when the majority of the local population had no immunity to the disease. However, by the 1770s, the influx of non-immune Europeans levelled off over the next two decades, indicating that a larger portion of the population residing in the islands for extended periods of time were more likely to have acquired immunity yellow fever. As a result, fever epidemics during the 1770s and 1780s were less frequent and less severe, meaning a general healthiness reigned among West Indian residents and visitors. During this intermission in fever outbreaks, the Sick and Hurt Board and the navy's medical personnel worked vigorously to improve medical practices so that when the joint expeditionary forces were ordered to sail to the West Indies in the 1790s, the navy was much better prepared to manage disease and therefore suffered considerably less than the army who had failed to make similar advancements. The navy's preparations included the distribution of portable soup, Peruvian Bark and the

administration of lemon juice as well as the erection of purpose-built hospital facilities on a number of West Indian islands. These, and a number of other factors, gave the navy a distinct advantage over the army during the deployment of the expeditionary forces in the 1790s, meaning the loss of naval men through disease and debility was somewhat mitigated.

In order to establish the exact percentages of sickness and mortality for this thesis, a survey was carried out on all the ships stationed in the West Indies during 1773, 1778, 1783, 1788, 1790, 1793, 1798 and 1803 meaning a sample was taken every five years (with the exception of 1790). Those dates ensure an equal number of samples were taken during both war and peace years as to be able to draw comparisons between them. From these figures, it was possible to ascertain sickness and mortality rates for both the Jamaica and Leeward Islands stations. According to figures contained in Chapter 4, neither station experienced over a 4 per cent annual sickness rate, even during years when there was a documented outbreak of yellow fever. And in fact, there were a number of sample years during which time sickness figures for men on board their ships was less than 2 per cent. The most violent year for sickness was 1793 (during the yellow fever epidemic) in the Leeward Islands where an average of only 3.57 per cent of men were ill at any one time.

Mortality figures were similarly as low on both stations. Astonishingly, during the survey years, less than 7 per cent of men succumbed to their disease or wound, the only exception being 1793. There were a handful of years where both stations experienced less than 2 per cent annual mortality rate on board their ships. Again, the most deadly year was 1793 in the Leeward Islands which experienced a 6.47 per cent annual mortality rate inclusive of the yellow fever outbreak while the Jamaica stationed suffered 9.50 per cent mortality. That is not to suggest that all ships enjoyed such a marginal state of sickness and mortality. A small number of ships suffered more than others at the outbreak of yellow fever; the *Experiment*, *Nautilus* and *Solebay* all sustained a roughly 35 per cent sickness level on board. The mortality rate also swelled on board those ships with the *Experiment* and *Nautilus* experiencing an approximately 26 per cent rate while the *Solebay* fared much worse losing almost 54 per cent of the ship's company. Typically, ships that were subjected to stringent levels of discipline and cleanliness fared much better in the West Indies than those that lacked discipline and who laundered their clothing and bedding less frequently. It was also regularly the case for newly-arrived ships to experience an attack of fevers which produced higher sickness levels than those ships that had been on the station for some time.

Aside from the sampling method, another way to gauge health and illnesses on board ships in the West Indies was through the surgeons' journals. Although they were not mandatorily or systematically kept, surgeons recorded their observations and treatments for their future reference. A number of the journals documented every man put on the sick list with a brief description of symptoms while other journals focused on the most extraordinary cases they treated in precise detail. The journals which contain the more unusual cases include incidents of seamen voiding enormous worms, poisoned by insect bites, struck by lightning and one case in which a large sewing needle penetrated a man's sternum.

As the eighteenth century progressed, health improved significantly. It advanced to such a degree during the thirty-six year period covered in this thesis, that, according to Gilbert Blane's calculations, 'it appears clear...that if the mortality during the twenty years of the [French] Revolutionary War had been equal to what it was in 1779, the whole stock of seamen would have been exhausted.' If his calculations were correct, he approximated that 'men would not have been procurable by any bounties however exorbitant...that if the mortality of 1813 had been equal to that of 1779, there would have died annually six thousand, six hundred and seventy-four men more than have actually died; which in twenty years would have amounted to 135,480, a number very nearly equal to the whole number of seamen and marines employed in the last years of the late war.'¹

Vast improvements in health had a great deal to do with changes to the way seamen were cared for on shore. Both Chapters 6 and 7 demonstrate how earlier in the eighteenth century, the Admiralty and the Sick and Hurt Board relied on the 'sick quarters' system as a way to manage the ailing men. Although there were financial benefits for the Admiralty to utilise that system, there were sufficient objections on foreign stations particularly with regard to rooms rented in public houses. The system of care evolved from the utilisation of sick quarters to the 'contractor system', which was designed to maintain men in one location and far-removed from town debauches. Contractors were hired by the Admiralty and instructed to secure a house large enough to contain a considerable number of seamen as well as requiring them to provide all provisions and necessaries. Once more the financial advantages belonged to the Admiralty. Contractors were either paid per man per cure or per man per day with the principal monetary burden resting with them. Fluctuations in prices for provisions and necessaries meant that they were often unable to

¹ Gilbert Blane, *On the Comparative Health of the British Navy, from the year 1779 to the Year 1814, with Proposals for its farther Improvement* (London, 1815) in Christopher Lloyd (ed.), *The Health of Seamen: Selections from the Works of Dr James Line, Gilbert Blane and Dr Thomas Trotter*, vol 107 (London: Navy Records Society, 1965), p.188.

supply the hospitals and frequently operated at a financial loss. With this sporadic availability of medicines and necessities at the hospitals, seamen suffered and often they did not return to service promptly.

By the mid-eighteenth century, the Admiralty and the Sick and Hurt Board grew tired of the complaints about sick quarters and contractors. They determined that replacing those systems with purpose-built naval hospitals would alleviate some grief. Two successful hospitals were established by the navy in England; Haslar at Portsmouth and Stonehouse at Plymouth. The good effects felt from having those large buildings available for sick men encouraged the navy to establish similar, though nevertheless smaller, hospitals abroad. There were already a handful in the Mediterranean, however the buildings were pre-existing structures rented by the navy and not constructed to their specifications which typically consisted of individual wards to separate sick men.

In the West Indies, the Admiralty considered erecting a hospital at Jamaica as early as 1740. The current arrangements on that island meant that sick men were scattered between nine different houses while a single surgeon attempted to attend them all in the same day. Both the surgeon and commander on the station thought it would be more appropriate for the men to be looked after in a single location where there would be a consistent availability of medicines. The Admiralty considered erecting the hospital at Jamaica before any other island in the West Indies because the squadron based there was more heavily-manned than its counterpart in the Leeward Islands. By 1744, a naval hospital was constructed adhering to a design drawn up by Admiral Vernon and the Navy Board in an area known as New Greenwich. As soon as it began accepting patients, the instances of men dying from malaria increased significantly. Unbeknown to the Admiralty and the Sick and Hurt Board, the morasses surrounding the hospital contained disease-carrying mosquitoes which attacked men in hospital who were already suffering from weakened immune systems. Even men who were sent to New Greenwich hospital with non-fever related complaints soon succumbed to malaria, so much so that the hospital's surgeon requested that men not suffering from fever remain on their ships for treatment. The hospital's location also wiped out a number of surgeons and at one point five died within a few months. A decade passed before the Admiralty ordered the construction of a replacement hospital at Port Royal and once the hospital was relocated, the overall health of patients improved.

Port Royal hospital proved so successful in convalescing men that other islands were earmarked for construction. Ongoing problems with sick quarters and contractors at Antigua forced the Admiralty to consider building a permanent hospital at English

Harbour. Aware of the problems and expenditure at Jamaica fifteen years earlier, they were not eager to repeat their mistakes. Instead they managed to find local Antigua men to erect a hospital at their own expense which was subsequently managed by contractors. Problems with natural disasters and incompetent suppliers of hospital necessities meant the on shore care of seamen at Antigua was substandard and forced commanders to order the sick men into temporary tents and a hurricane-damaged house. They continued in that situation for eighteen years until the Admiralty was finally prepared to lay out funds for the erection of a naval hospital at English Harbour which was completed in 1790. Having that facility operational before the outbreak of the French Revolutionary War meant the hospital was poised to accept large numbers of sick seamen who recuperated in an organised and favourable environment.

In the eighteenth century, disease plagued a large portion of the European population which was generally anticipated and accepted. Likewise, the navy too had a reasonable expectation that a portion of their fleet would be sickly at any given time. In conjunction with this expectation, logistical issues and lack of fresh provisions caused an even higher level of dietary and nutritional complaints in the navy while the ordering of men to the West Indies added another concern about tropical diseases. Some larger expeditions to tropical regions suffered severely from yellow fever and malaria but, on the whole, sickness was not that detrimental to the navy's manpower. By the 1770s, the navy had a grasp on successfully caring for men in that climate and knowledge of minimising the risks of exposure by anchoring ships offshore and administering Peruvian Bark to those destined for shore duty. This resulted in overall sickness levels averaging around 3 per cent while mortality rates were generally less than 3 per cent. These figures are a far cry from what researchers and historians have supposed and no longer should the West Indies be referred to as the 'seamen's graveyard'.

This thesis thus provides a major corrective to recent opinion about the health of naval seamen in the West Indies. It has concentrated on the care for them provided by the navy between 1770 and 1806. By examining papers belonging to the Sick and Hurt Board, surgeons, physicians and the Admiralty's records, the thesis has covered a variety of themes including disease, medicine, hospital development and key personnel. The methodology of employing ships' muster books in order to systematically carry out the survey of health is an original approach which can be replicated in future to determine sickness and mortality levels in different regions and at different time periods. Likewise, the systematic approach

taken with the hospital muster books establishes an innovative way to gather sickness and mortality figures which can be replicated on other stations. Surgeons' journals have been generally overlooked in most naval medicine studies; something which this thesis rectifies. This thesis benefits from examining the surgeons' first-hand experiences to contextualise how diseases took hold of a ship, what medicines were employed, which were found useful and a number of their more unusual cases that typically are not included in most naval or medical histories.

Naval medicine has been experiencing a resurgence of late after it was largely ignored following the four volume series of *Medicine and the Navy* which was essentially a work on naval administration. Recent publications have drifted away from the conventional focus on administration and moved towards a more interdisciplinary approach. Works on particular diseases and on the role of surgeons in the navy demonstrates this shift well, although investigations into the levels of sickness in various regions and time periods have been largely ignored. While this thesis has attempted to remedy the oversight to some extent, it is certainly not the definitive work on the subject. It demonstrates that quantitative surveys can be carried out in order to establish sickness and mortality levels with reasonable certainty and more specifically it addresses the long-standing belief that ordering seamen to the West Indies in the eighteenth century was as good as signing their death certificates. While naval medicine occupies only a small branch of the service as a whole, it played such a crucial role in securing and protecting the colonies that more studies of this nature need to be carried out in order to fully appreciate the working environment of an eighteenth century British seamen.

APPENDIX 1

Islands of the West Indies



APPENDIX 2

New Edition of the Instructions for Navy Surgeons, 1 February 1800 ¹

1st

When you are appointed to serve on board of any of HM ships or vessels you are to provide yourself agreeably to the rules of the navy with instrument and a chest of medicines, which are to be viewed and examined by us, in order that we may satisfy ourselves and certify that they are of the quality and in the quantity required, you are also to demand the several gratuitous articles enumerated in form No.4, either from us or from our agents in Foreign Parts.

2nd

You are every twelve months, or oftener if necessary, when in port, to write to your Captain, requesting his application to the Commander in Chief to direct a survey on your medicine chest, which is to be taken by two or more surgeons of the fleet who are to certify and report the quantity and condition of the medicines and instruments on board, which report you are to transmit to this office in order to our directing the apothecaries company to send the necessary supply.

3rd

You are to be provided at all times with a competent number of smart tickets, which will be delivered to you upon application at this office or by our agents at the out ports.

4th

You are to examine the necessaries sent on board, and if they are deficient in quantity, or bad in quality, you are to acquaint your captain, that he may represent the same to us.

5th

You are to take care that the medicines and necessaries with which you are supplied, are faithfully administered for the relief of the sick and wounded and that no part of them be either wasted or embezzled.

6th

When draughts of men are brought on board, you are to apply to the captain or commanding officer for permission to inspect and examine them, and you are to endeavour to discover from whence they came, whether they have any infections, or whether there be reason to suspect infection, in consequence of their being received from jails, tenders, receiving ships, or ships in which infectious disorders have prevailed and you are to represent the same to the captain, that he may take proper steps either to remove them from the ship, or to have them properly cleansed and purified by bathing their persons, or by fumigating or destroying their cloths, before they mix with the ships company; together with such other methods as you may suggest for preventing the introduction of sickness.

7th

As it has frequently happened that men raised at the different rendezvous, impressed on shore, on from merchant ships or entered as volunteers, have been found on their coming on board His Majesty's

¹ NMM, ADM/F/30, 1 February 1800.

ships to be unfit for service, you are by the permission of your captain to examine such men, on their first appearance on board, in the most minute manner; and if you find any of them labouring under disease, or such bodily infirmity, as in your judgement renders them unfit for His Majesty's service, you are immediately to inform your captain of their names, diseases or hurts, that he may take such steps, as he may think proper.

8th

On your return into port, from a cruise or voyage, you are to make out a list to be signed by yourself, of all such seamen and marines as have received wounds or hurts during the said voyage or cruise, which may entitle them to relief from the Chest at Chatham, but smart money or pension, noting who have had certificates and who have not, in form No.1 observing not to grant them for trifling hurts, whereby many persons are brought from a great distance for relief, when the sum that can be allowed them for their hurts may not be sufficient to defray the expenses of their journey, but you are not to refuse them to any men who are materially injured; and in the certificate you give, you are to be particularly attentive to the note which is at foot of the blanks, delivered from this office.

As inconveniences have arisen from the said lists not being delivered into the navy office, till the ship is paid, you are to be careful to send your list of such men, with the captain's muster books every two months, or as often as the captain shall have an opportunity to send his muster books, directing the same under cover sealed up to this office in order that we may transmit the same to the comptroller's office, for payment of seamen's wages, and further you are to deliver a list of the whole, to the clerk to the Comptroller of the Navy, at the payment of the ship, without which you are not to be paid your wages.

9th

When from bad weather the lower deck parts of the ships of the line cannot be opened and the leakage from these parts, and the breath and perspiration of the men sleeping below, render the space between decks replete with moisture and noxious effluvia, tending to produce disease and generate infection, you are in the most respectful but earnest manner to represent to your captain the absolute necessity there is to keep the ship as dry and sweet as circumstances will admit for which purpose you will recommend that iron pots, or hanging stoves, with burning cinders be carried between decks, into the well, manger, cockpit, cable tier, the hold and other parts of the ship, where the air is stagnant and offensive, from defect of ventilation, you are also when there is any infection, or cause to suspect infection, and when you can obtain your commanders permission to fumigate every part of the ship when the men are below, by diffusing the vapour of the nitrous acid, with the materials for performing which you will be supplied, directions for conducting this are annex No.2. During this fumigation the bedding and clothes of the men are to be opened, spread loose, and detached so that they may be completely surrounded by the vapour. In similar circumstances, and when the situation of the service will permit, all the men to be on deck, you are with your captain's permission, to fumigate with burning charcoal and brimstone as often as may be necessary, according to the method hereunto annexed No.3. When men are taken ill of fevers, which you suspect to be infectious, they are to be stripped on their entry into the sick berth, and if practicable washed with soap and warm water, and to have clean shirts and night caps, on their going to bed, their clothes and bedding which they have laid aside, are to be carefully fumigated, and washed, before they are returned to the men's chests.

10th

As the frequent washing between decks, particularly in climates and season in which they cannot be completely dried before the men return to their berths, has ever been productive of sickness, you will therefore in respectful terms represent to your captain's consideration, how much it will conduce to the health of the ships company that their apartments, as well as their clothing, should be kept as dry as circumstances will admit.

11th

As hair mattresses, sheets, linen, caps and pillow cases for the use of patients confined to bed, are allowed with soap for washing them when dirty, and for the more readily cleansing the persons of the sick, you will give particular directions to the assistants acting under you, that your patients be kept in that perfect state of cleanliness, which is necessary for their recovery.

12th

In an engagement you are to keep yourself in the cockpit, or such other place as the captain shall appoint, where a platform is to be prepared for the reception of the wounded men, and yourself, mates and assistants are to be ready and have everything at hand for stopping their blood, and dressing their wounds. You are to instruct such of the assistants, as the captain may have directed to be quartered with you in the time of action, in the method of applying tourniquets, in case you or your mates should not have time to attend to that service.

You will also represent to the captain, that as it sometimes happens in time of action, that men bleed to death for want of speedy assistance particularly in parts distant from the cockpit, such as the quarter deck, poop, forecastle, and tops, it would be expedient that a certain number of petty officers or others quartered at these stations should be instructed by you in the method of applying tourniquets, with which they should be provided on such occasions.

13th

You are to visit the men under your care at least twice a day, and oftener if their circumstances require it, and you are at other times to distribute your mates and assistants among them in order that none may at any time want due attendance and relief.

14th

As it is of the utmost importance, that proper means of cure should be employed at as early a stage as possible, of the several diseases to which the men are subject, and as seamen are naturally careless of their own welfare and averse to complain, you are as often as you perceive any of the ships company who by their appearance give indications of illness; to examine them and put them on the sick list, if necessary; that not time may be lost in stopping the further progress of disease; and in order to make an early discovery of illness, you will take frequent opportunities of viewing the ships company, and for the same purpose yourself or your mate, will take care to be present at all musters.

And upon long cruises, or voyages, when there is not a sufficiency of lemon juice for the whole number of men on board, you are with the captain's leave, to take a view of the ships company from time to time, and examine whether any of them have obscure symptoms of sea scurvy, too slight to make it necessary for them to withdraw from duty and be put on the sick list, and you will also enquire what

men have been longest on salt provisions, and making out a list of such men, you will present it to the captain, in order that may give directions for their being supplied with the usual allowance of lemon juice and sugar, put in the purser's custody for that purpose.

15th

You will take care to regulate the diet of the sick according to their several symptoms and disorders. This is to consist of a certain proportion of their sea victualling, restricting them in regard to salt provisions, and such other articles as you may judge improper for their complaints, and employing their oatmeal in making gruel and sowins, their flour, in making soft bread or puddings, these together with their molasses, and raisins, the necessaries in your own charge, and portable soup, will constitute a wholesome diet for the sick. For such cases as in your opinion require wine, at a time when beer or spirits are served, you will demand from the purser in lieu of these such a quantity of wine as you judge necessary, not exceeding one pint for each man daily.

16th

You are to request the captain to permit the sick berth, to be in the most airy part of the ship, provide it is sheltered from the weather, and the patients are to be removed thither when you judge it necessary, you are also to request your commander to allow such a number of the ships company as may be requisite, to attend the sick as nurses, night and day you are also to request him to cause you to be furnished with a sufficient number of buckets with covers for necessary occasions.

17th

You will take particular care that medicines and drink be provided every evening in sufficient quantities to last till morning, and as drink to the sick, particularly in fevers, it essential to their comfort and recovery you are to give the most positive directions, that the nurses and attendants offer, and gently press it upon the patients, every hour or oftener according to circumstances; although the patients may not crave or ask for it.

You are to have a stove with clean burning cinders, in the berth as often as possible, not only for the comfortable warmth of the patients, should the climate and season require it, but to prevent dampness and for the purification of the air.

18th

In case any of the articles supplied by the purser, should be deficient in quantity or improper in quality you will take care to represent the same to the captain, in order to obtain redress.

19th

When any of the ships company are employed by the captain, in fishing, you are to point out to him those patients for whom fish may be proper.

20th

As it must be attended with danger to permit the sick, under perspiration, or in a state of extreme debility, to be moved from their bed on necessary occasions, you will be provided with bed pans and urinal for patients under those circumstances, and for those labouring under catarrhal and pulmonic

complaints, where expectoration is considerable, spitting pots will be furnished to prevent their becoming a nuisance to the other patients.

21st

As the recovery and comfort of the sick will much depend on the person employed as nurses, you are to see that they do their duty with the utmost care and attention by night, and by day, and you will enquire from the patients themselves every morning and at other times when you visit them, whether they have been treated with humanity and tenderness, have been plentifully supplied with drink, medicines, diet and every necessary accommodation and if you find that these important duties have been omitted, or have been performed in a careless and negligent manner, you will report the same to your captain.

22nd

In all cases that are difficult; if there be a physician in the squadron, you are to resort to him for advice and follow his prescriptions.

23rd

You are to keep a journal of your practice, noting the disease and symptoms, with the medicines prescribed day by day, according to the form, delivered to you on your appointment, which is to be sent in original to this office with the other papers, necessary for passing your account; you are also to give an general history of the prevailing complaints in the ship during the said time, and if any malignant or infectious diseases have taken place, to trace them to their source, and account for their introduction, with the means used to destroy such infection and the steps taken to prevent their reappearance. If the crew have been healthy, you are to state what was the general œconomy of the ship.

24th

Whilst your ship is in any port of Great Britain, you are to transmit a weekly account of the state of the sick signed by yourself, with remarks and observations, according to the form with which you will be furnished to be sent so as to reach this office on a Monday.

25th

When your ship is abroad, one general return is to be transmitted when the captain sends home his monthly books, stating in your remarks, the effect of the weather and of climate, on the health of the men; when you are on a long cruise, one general return is to be made on your arrival in any port of Great Britain. In every return the name and qualities of your mate are to be inserted.

26th

It has frequently occurred, that the crews of ships on their passages to England, after having been long in a warm climate have been destitute of clothes, except such as were adapted to the former station, and that on their arriving in the northern latitude particularly in winter, great numbers have been seized with rheumatic and pulmonic complaints, as well as other dangerous diseases, evidently arising from a deficiency of warm clothing, you will therefore previous to your sailing, submit this matter to your captain's consideration, that he may take such steps as he may judge expedient for the procuring an adequate and suitable stock of clothing.

27th

You are every morning after visiting your patients, to make out and deliver to your captain, a list of their names, with their diseases and submit to him your opinion on the proper steps to be taken for their comfort and accommodation, more especially should any of their distempers be infectious, in order that those labouring under them may be sent out of the ship, or if that cannot be done, that they may be separated from the rest of the sick, and means taken for preventing the progress of the sickness.

28th

When you arrive in port, from any voyage or cruise, and have men on board who from consumptive habits or other complaints, or in consequence of having received any hurts are in your opinion unfit for the service, you are to give in a list of their names and diseases to the captain, who will represent the same to the commander-in-chief, in order to their being immediately surveyed you are however to guard with the utmost circumspection, against the imposition of men assuming and persevering in deigned complaint with a view to elude the service.

29th

The principal cause of sickness and mortality among seamen in tropical stations having been observed to consist in the duties they are obliged to perform on shore and Peruvian Bark with wine, having been found to be a preventive in such cases, you shall when your ship is upon these stations request from the captain a list of such men as are to be sent on shore duty, and administer yourself previous to their leaving the ship in the morning a drachm of Bark, in half a gill of sound wine to each man, and you will also give to each man the like quantity of wine after he shall have taken the bark, and the like quantity of Bark and wine proportioned in the same manner is to be given them in the evenings of the same days, on their return to the ship, particularly observing that the Bark administered for this purpose, is always to be given in substance, and not in tincture; and as wine is allowed to the ships companies on these voyages, it is recommended to you to make application to the captain for some of the best wine supplied for the ships use, to be reserved for this purpose, which is to be issued under his directions. If it should happen that any men remain on shore duty all night, the officer commanding them is to be furnished with a sufficient quantity of Bark and wine, for such exigencies.

You are to observe attentively the subsequent state of health of men to whom the bark may have been thus administered, and report fully to us, your opinion of its effects.

30th

No patients are to be sent from the ship to an hospital or sick quarters more especially in tropical climates, when they can conveniently be cured on board, unless where infection exists, but they may according to circumstances and with the captains approbation be supplied with diet on board by the contractor for the hospital your demands approved by the captain and your receipts are to be the contractors vouchers for what he may supply, and you are to take care that the same be faithfully administered.

31st

When any sick men are ordered on shore to the hospital or on board hospital ships, you are to send along with them to the physician and surgeon an account in writing sealed up, of the time and manner

of their being taken ill, and the methods used for their recovery, with your opinion whether they have appeared to you as impostors, who have feigned complaints to get clear of the service or whether on the other hand, their ailments are real, you are likewise to note their general character as far as comes within your knowledge.

32nd

In case there should be diseases of an infectious nature on board at the time of the ships arrival in port, you are to have in readiness a written statement of the nature and symptoms of such diseases, and the number you intend sending on shore, which you are to request your captain to send to the physicians and surgeons of the hospital or sick quarters, previous to landing the sick, in order that separate and proper apartments may be provided for their reception. After the sick are landed, you will represent to your captain the necessity of the ships undergoing a thorough cleansing and repeated fumigations, and also the advantage of fires in the different parts of the ship, and likewise a proper admission and perflation of the external air with a view to eradicate the seeds of infection. In case of your having any infectious disease on board when at sea, you are to endeavour to counteract such infection by the most strict attention to cleanliness, by ventilation, in so far as may be consistent with a proper degree of warmth, by drying and sweetening the air by means of portable fires, by the nitrous fumigation, and by an early separation of the sick from those in health.

33rd

When the medicines, bedding and other articles which government allows you are expended or nearly so, your demands for a supply are to be made to this Board when your ship is on the home stations or to our agents when abroad, transmitting at the same time a survey stating the remains and you are to take care, not to repeat your demands within the year, unless your ship should be ordered on foreign service, or in extraordinary exigencies, in which case you are to state your reasons, to be submitted to our decision.

34th

On passing your accounts, which are to be kept in form No.4 one general affidavit in form No.5 is to be made, stating that the different articles under your charge were expended for the use of the sick only.

35th

You are to propose from time to time for our consideration, all such matter as experience may have pointed out to you to be likely to prove beneficial to the service, to conduce to the comfort of the sick, under your care, and to tend to their speedy recovery.

Note

The preceding Instructions may serve as a guide for the common occurrences in general service, but much must ever be left to your own judgement and discretion. As you have the charge of the lives of the most useful subjects of this Kingdom, uncleanly in their habits often much crowded in their accommodations from these circumstances and the nature of their diet, and the varieties of weather and climate, liable to infectious fevers, as well as scurvy and other chronic complaints, also accidents from wounds, hurts &c incidents to their mode of life, the guarding against and counteracting those

evils, must depend on your own resources and promptitude in applying the most speedy remedies, according to circumstances.

As sickness in the most favourable situation on shore, in some degree depresses the spirits, much more must it affect your patients on board ships of war, labouring under so many inconveniences which cannot be remedied. Under these circumstances it will readily occur to you that it must tend to their recovery, to sooth and cheer their minds, by the most humane attention, to hear with patience all their complaints, and to redress whatever they may think grievances, by every expression of consolatory kindness, which will naturally inspire them with confidence, exhilarate their spirits, and add to their hope of recovery to which it cannot fail to contribute.

APPENDIX 3

Daily Allowance of Provisions for each man in the Navy¹

	Biscuit lbs	Beer gallons	Beef lbs	Pork lbs	Pease pint	Oatmeal pint	Butter ozs	Cheese ozs
Sunday	1	1		1	½			
Monday	1	1				1	2	4
Tuesday	1	1	2					
Wednesday	1	1			½	1	2	4
Thursday	1	1		1	½			
Friday	1	1			½	1	2	4
Saturday	1	1	2					

¹ Gilbert Blane, *Observations on the Disease of Seamen* (London, 1789) in Christopher Lloyd (ed.), *The Health of Seamen: Selections from the works of Dr James Lind, Sir Gilbert Blane and Dr Thomas Trotter*, vol 107 (London: Navy Records Society, 1965), p. 164.

APPENDIX 4

Instructions for Issuing Portable Soup on board His Majesty's Ships, 3 February 1758 ¹

Whereas it has been judged proper to provide Portable Broth for His Majesty's Sick seamen and Marines on Board the Ships of War, the following rules are calculated for the issuing thereof viz.

1st The Lords Commissioners of the Admiralty having been pleased to direct that the said broth shall be put under the charge of the purser, to be issued to the sick by demands in form No.1 to be made from time to time by the surgeon as he shall judge proper, verified by the captain; the purser is to account with this office for the expense thereof in the Form No.2 to produce the demands as vouchers thereto and to make affidavit in Form No.3 that he only issued the broth as demanded in that manner.

2nd It has been found upon trial that one ounce of such broth will be sufficient to make one quart of liquid broth, so strong that it will jelly when cold; and as it contains the nourishing juices of about three quarters of a pound of flesh meat, that quantity will be sufficient for, and is to be issued to each recovering patient in a day; it must be dissolved in a quart of boiling water and given to the patients in such proportions as the surgeon of the ship may judge proper.

3rd It has likewise been found that $\frac{3}{4}$ of an ounce will make one quart of light nourishing and diluting broth for those that are sick or weak, and will be very proper in scorbutic cases: that quantity will be sufficient for such patients for one day, and is to be issued accordingly.

4th The surgeon is to cause to be added to the broth, if found necessary, rice, oatmeal, pearl barley or pease: an ounce of the first and two ounces of the three others will be sufficient for a quart of broth, being first softened in boiling water; which is to be poured off and then the remaining thick part to be mixed with the broth.

5th The surgeon is to keep in a book for that purpose in form No.4 a journal of the sick, showing the number of days each man is upon the stronger or weaker broth diet, by which the expenditure of the broth will be checked and the effects it had on the several patients may likewise by that means be judged of; at the end of this journal an abstract is to be made in the form No.5 and both to be transmitted to this office; and as no portable broth is to be issued, but in the manner prescribed in the 1st article, the surgeon is to make affidavit in form No.6 that he never demanded any but for the use of the sick; and that, to the best of his knowledge and belief, the same was faithfully served to them, and not expended for any other uses.

6th The pursers and surgeons are both to take notice that till the accounts prescribed for each, are delivered and adjusted, the accounts of the one with the Victualling Office will not be passed, nor the wages of the surgeon paid: and that any remains which there may be of the portable broth, is to be delivered to the agent for sick and wounded seamen at the port where the ship may happen to be.

Given under our Hands at our office on Tower Hill this 3rd Day of February 1758.

¹ NMM, ADM/F/17, 3 February 1758.

APPENDIX 5

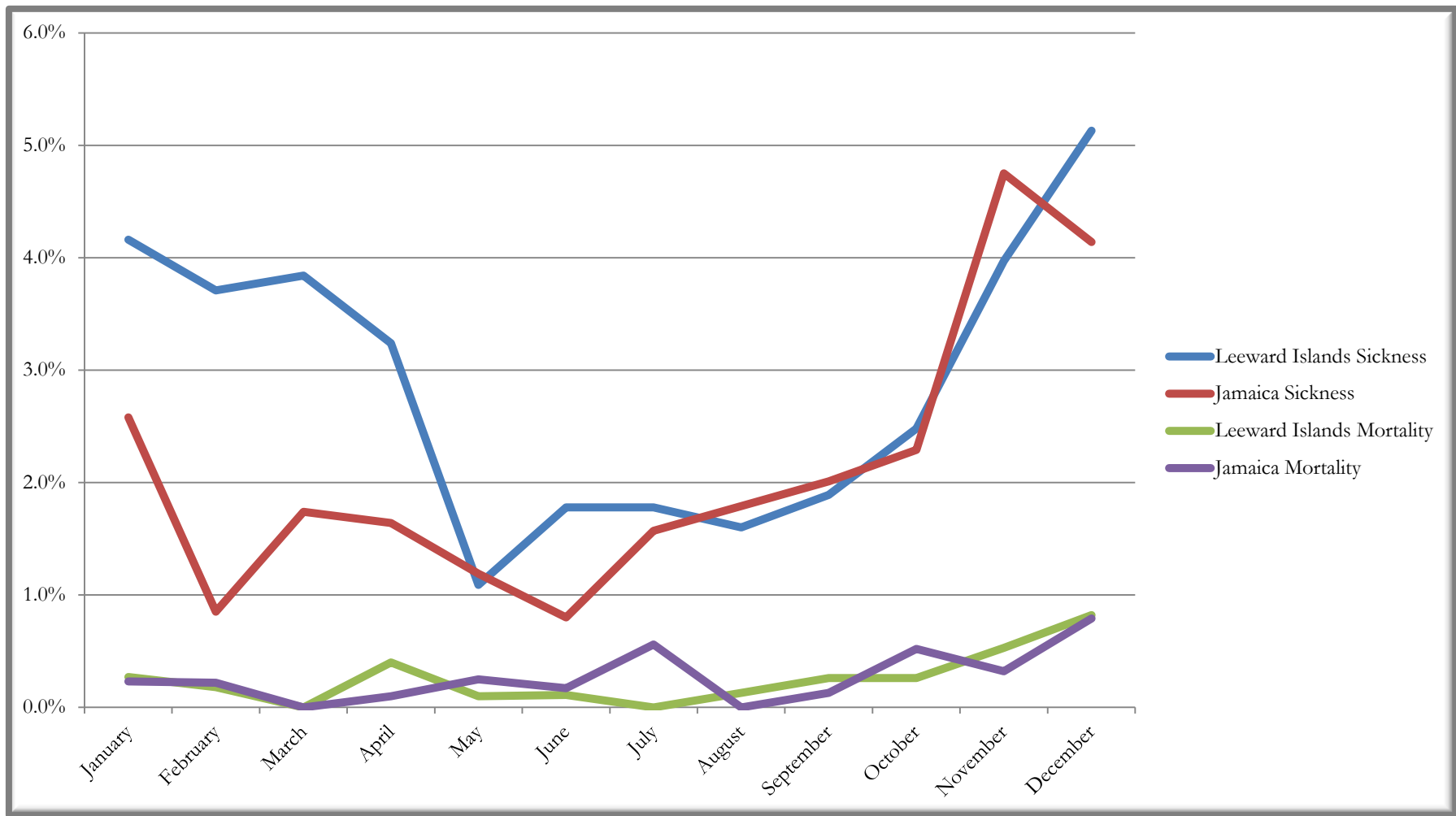
Number of Seamen and Marines Voted by Parliament with the Number sent Sick on Shore and to Hospital Ships on the Home Stations, 1778 - 1806¹

Year	Voted by Parliament	Sent Sick
1778	60,000	15,978
1779	70,000	24,226
1780	85,000	32,121
1781	90,000	23,812
1782	100,000	22,909
1783	110,000	13,577
1793	45,000	17,280
1794	85,000	19,248
1795	100,000	20,579
1796	110,000	16,860
1797	120,000	20,544
1798	120,000	15,713
1799	120,000	14,608
1800	111,538	17,747
1801	131,538	15,082
1804	100,000	7,650
1805	120,000	8,083
1806	120,000	7,662

¹ Gilbert Blane, *Select Dissertations: On the Comparative Health of the British Navy, from the year 1779 to the year 1814, with proposals for its farther improvement* in Christopher Lloyd (ed.), *The Health of Seamen: Selections from the works of Dr James Lind, Sir Gilbert Blane and Dr Thomas Trotter*, vol 107 (London: Navy Records Society, 1965), p. 200.

APPENDIX 6

Sickness & Mortality Figures on board ships on the Leeward Islands and Jamaica stations
1773, 1778, 1783, 1788, 1790, 1793, 1794, 1798 and 1803



Appendix 6.1 – Leeward Islands & Jamaica 1773¹

¹ Primary sources for the data are individually listed on the following pages.

	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average ²
Jamaica - Number of Borne Seamen	1310.5	1357.25	1023.0	1022.0	1196.25	1182.5	1069.5	767.25	772.5	776.25	631.5	633.75	1824.2
Jamaica - Average Number of Men on Sick List	33.75	11.5	17.75	16.75	14.25	9.5	16.75	13.75	15.5	17.75	30.0	26.25	
Jamaica - Total Number of Men Dead	3	3	0	1	3	2	6	0	1	4	2	5	
Leeward - Number of Borne Seamen	1105.5	1104.75	1113.5	1001.75	1008.0	929.25	798.75	797.5	766.5	766.75	749.0	735.75	1209.9
Leeward - Average Number of Men on Sick List	46.0	41.0	42.75	32.5	11.0	16.5	14.25	12.75	14.5	19.0	19.75	37.75	
Leeward - Total Number of Men Dead	3	2	0	4	1	1	0	1	2	2	4	6	

² The Yearly Per-Ship Average is not derived simply by averaging together the 'Borne' Seamen figure from each month. A more complex system has been employed in order to calculate this figure. Due to the constant influx of ships on each station, an average 'Borne' number was calculated for each ship that spent time in the West Indies. For example, in the Leeward Islands, for the twelve months that *Chatham* was on station, an average of 'Borne' men was calculated and added to other individual ships' averages, thereby arriving at the figure 1209.9 as the yearly-average rather than 906.4 which would be the case if I took an average of the monthly 'Borne' figures.

Leeward Islands station 1773

Chatbam ADM 36/8454, ADM 36/8455

Crescent ADM 36/7573, ADM 36/7574

Active ADM 36/7545

Seaborse ADM 36/7517

Kennington ADM 36/7760

Spy ADM 36/7492

Falcon ADM 36/7501

Favourite ADM 36/7372

Lynx ADM 36/7629

Deal Castle ADM 36/7592

Jamaica station 1773

Princess Amelia ADM 36/7275, ADM 36/7276

Achilles ADM 36/7293

Diana ADM 36/7495

Lowestoffe ADM 36/7634

Carysfort ADM 36/7340

Garland ADM 36/7391, ADM 36/7392

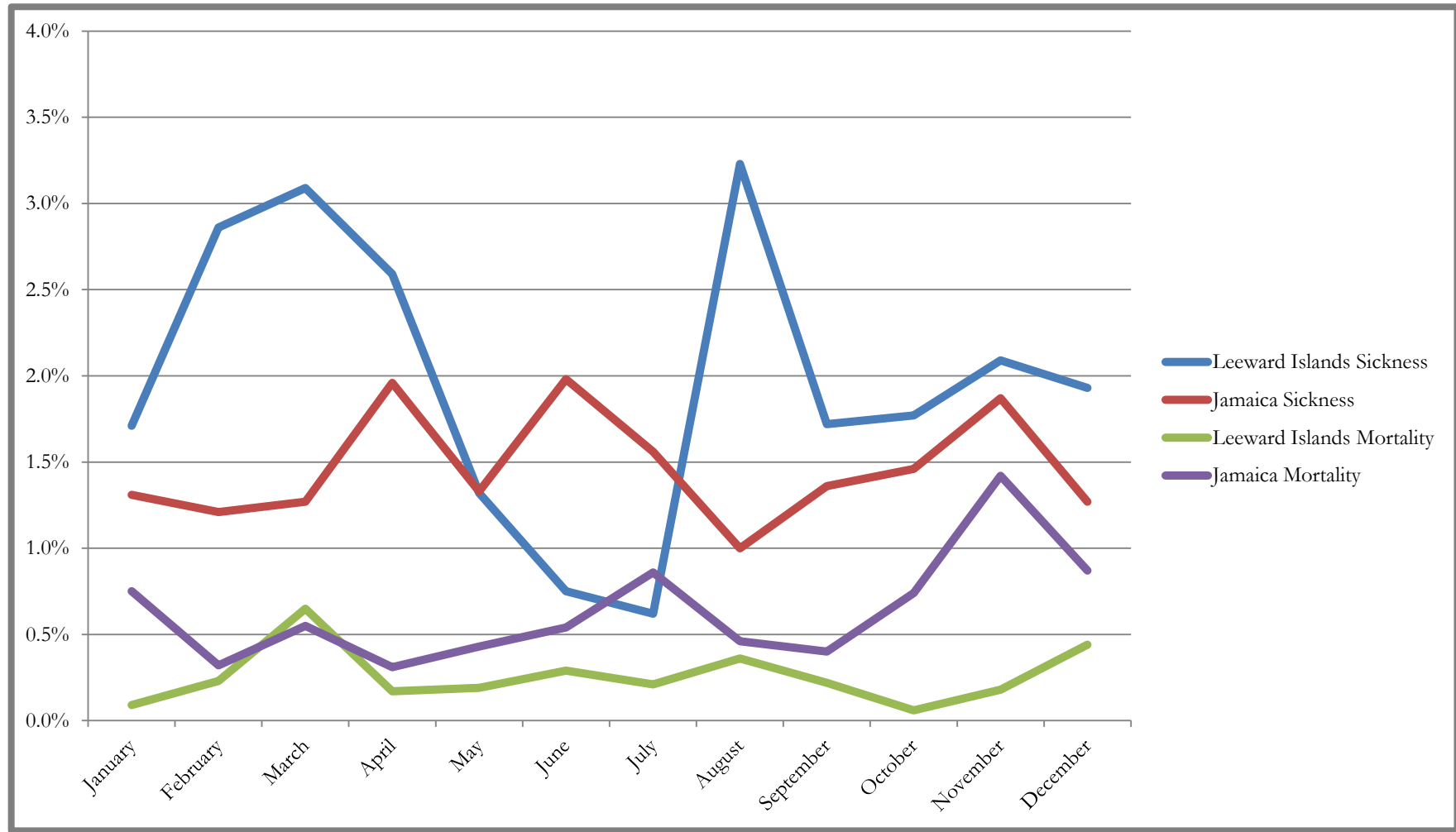
Zephyr ADM 36/7541

Diligence ADM 36/7585

Ferret ADM 36/7378, ADM 36/7379

Portland ADM 36/8047

Seaford ADM 36/7679



Appendix 6.2– Leeward Islands & Jamaica 1778³

³ Primary sources for the data are individually listed on the following pages.

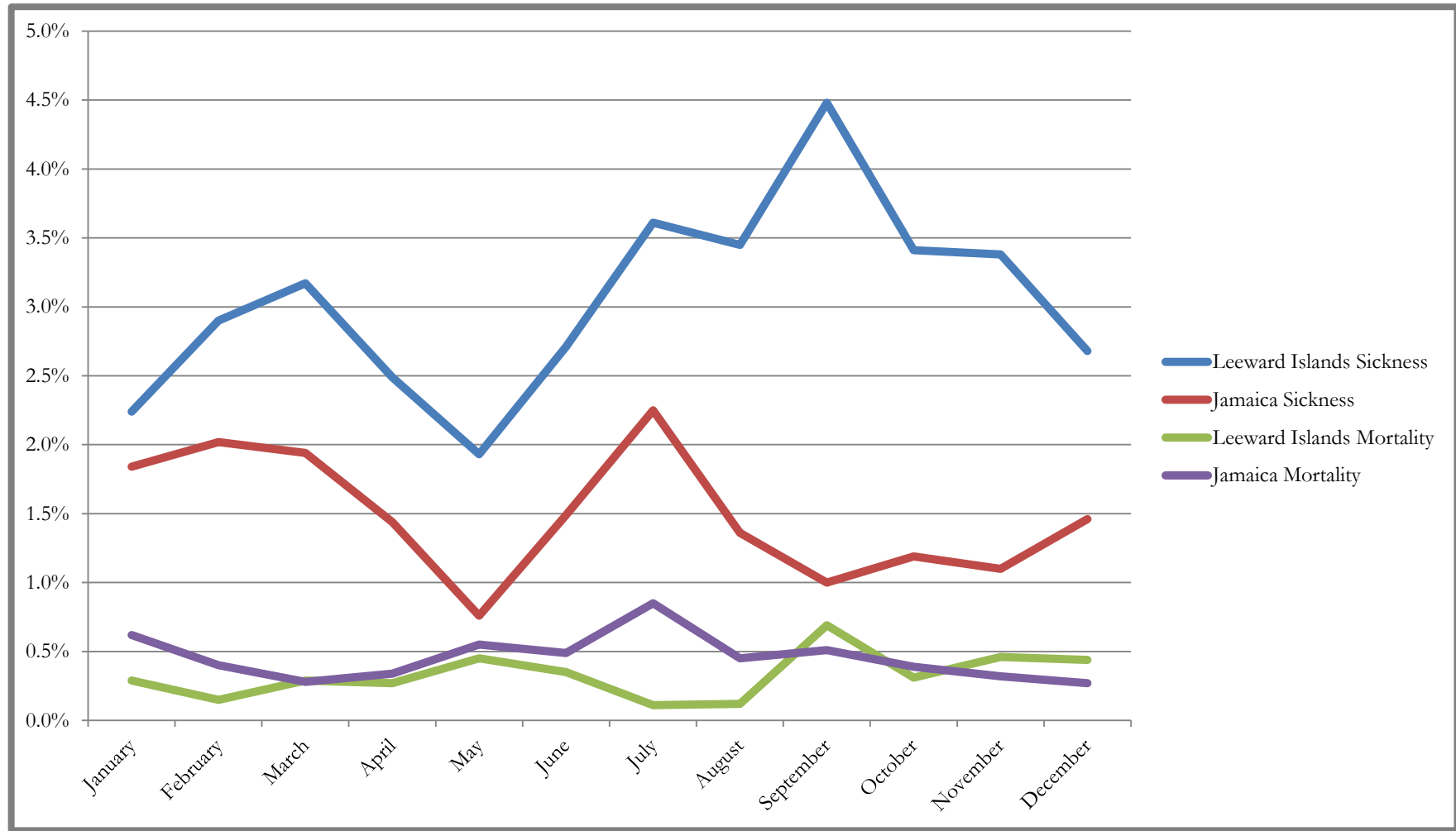
	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average
Jamaica - Number of Borne Seamen	2396.75	2534.5	2931.0	2552.75	2349.75	2024.0	2097.25	1970.0	1729.5	1745.75	2184.5	2177.25	3786.3
Jamaica - Average Number of Men on Sick List	31.5	30.75	37.25	50.0	31.25	40.0	32.75	19.75	23.5	25.5	40.75	27.75	
Jamaica - Total Number of Men Dead	18	8	16	8	10	11	18	9	7	13	31	19	
Leeward - Number of Borne Seamen	2144.25	2148.25	2315.5	2299.25	2098.5	2036.0	1902.0	1384.5	1812.75	1653.5	1647.5	1594.5	3468.7
Leeward - Average Number of Men on Sick List	36.75	61.5	71.5	59.5	27.75	15.25	11.75	44.75	31.25	29.25	34.5	30.75	
Leeward - Total Number of Men Dead	2	5	15	4	4	6	4	5	4	1	3	7	

Leeward Islands station 1778

Endeavour ADM 36/8126
Portland ADM 36/8592, ADM 36/8593
Yarmouth ADM 36/8072
Aurora ADM 36/8728, ADM 36/8729
Ariadne ADM 36/9081, ADM 36/9082
Deal Castle ADM 36/8257
Seaford ADM 36/8912
Ceres ADM 36/7828
Cygnets ADM 36/9597, ADM 36/9598
Shark ADM 36/7720
Favourite ADM 36/7976, ADM 36/7977
Fly ADM 36/8763, ADM 36/8764
Grasshopper ADM 36/7733
Snake ADM 36/9775
Beaver ADM 36/10158, ADM 36/10159
Boreas ADM 36/9061
Prince of Wales ADM 36/7900, ADM 36/7901
Boyne ADM 36/8010
Pelican ADM 36/8521, ADM 36/8522
Comet ADM 36/7726
Antigua ADM 36/7827

Jamaica station 1778

Antelope ADM 36/7555
Southampton ADM 36/8528
Aeolus ADM 36/8832, ADM 36/8833
Niger ADM 36/8450, ADM 36/8451
Hind ADM 36/8382
Glasgow ADM 36/7906, ADM 36/7907
Atalanta ADM 36/9045
Porpoise ADM 36/7740
Lowestoffe ADM 36/10048, ADM 36/10049
Chameleon ADM 36/9610
Lynx ADM 36/10029
Hornet ADM 36/9897, ADM 36/9898
Hound ADM 36/9903, ADM 36/9904
Sylph ADM 36/7842, ADM 36/7843
Porcupine ADM 36/10531
Stork ADM 36/10144
Racehorse ADM 36/7888
West Florida ADM 36/9895
Camel ADM 36/8462, ADM 36/8463
Cupid ADM 36/7969
Druid ADM 36/7853
Ostrich ADM 36/9096
Lowestoffe's Prize ADM 36/8254
Ruby ADM 36/8987
Bristol ADM 36/8117, ADM 36/8118
Winchelsea ADM 36/7881
Diligence ADM 36/7586



Appendix 6.3– Leeward Islands & Jamaica 1783⁴

⁴ Primary sources for the data are individually listed on the following pages.

	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average
Jamaica - Number of Borne Seamen	8079.5	11177.75	11832.0	11726.5	6575.75	2851.0	1288.5	1117.25	1176.25	1025.75	950.25	738.0	12984.5
Jamaica - Average Number of Men on Sick List	148.5	225.5	229.25	169.25	49.75	42.5	29.0	15.25	11.75	12.25	10.5	10.75	
Jamaica - Total Number of Men Dead	50	45	33	40	36	14	11	5	6	4	3	2	
Leeward - Number of Borne Seamen	11511.0	12779.0	12593.0	12850.0	4885.75	3132.75	1869.0	1686.5	1304.75	1297.75	1314.75	1138.5	13695.0
Leeward - Average Number of Men on Sick List	258.0	370.75	399.5	320.5	94.5	84.75	67.5	58.25	58.5	44.25	44.5	30.5	
Leeward - Total Number of Men Dead	33	19	36	35	22	11	2	2	9	4	6	5	

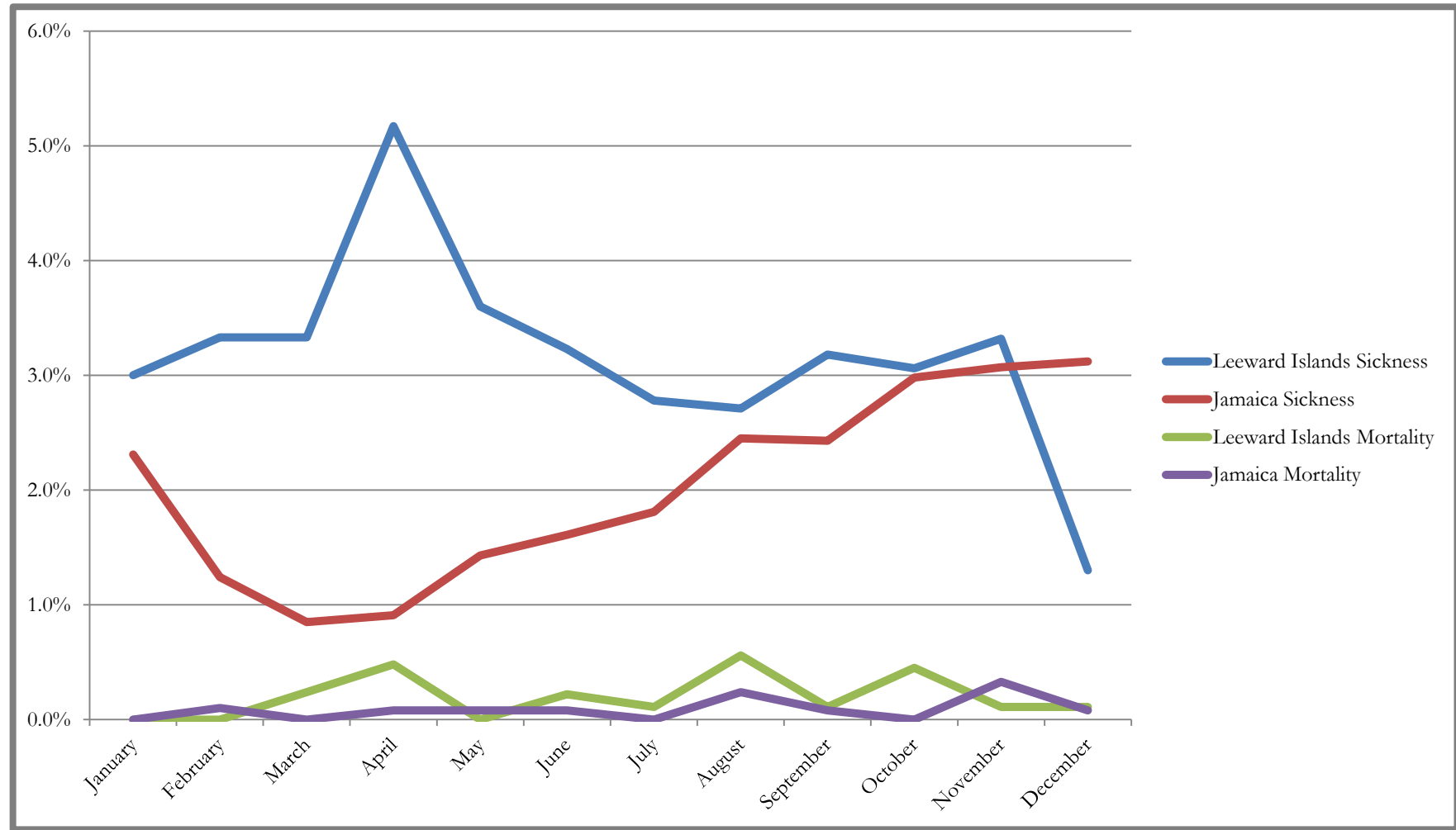
Leeward Islands station 1783

Pegasus ADM 36/9793
Fury ADM 36/10085, ADM 36/10086
Zebra ADM 36/10229, ADM 36/10230
Formidable ADM 36/9120
Namur ADM 36/8984
Duke ADM 36/9127
Union ADM 36/9377
Princess Amelia ADM 36/9988
Fame ADM 36/8848
Berwick ADM 36/8904
Raisable ADM 36/10067, ADM 36/10068
Bellona ADM 36/8896
Suffolk ADM 36/9396
Conquerer ADM 36/8976
Hercules ADM 36/9213
Royal Oak ADM 36/9526
Invincible ADM 36/9002
Warrior ADM 36/8908
Magnificent ADM 36/9470
Princessa ADM 36/8944
St Albans ADM 36/9146
Ruby ADM 36/8992
Prudent ADM 36/9369, ADM 36/9370
Nonsuch ADM 36/9756
Yarmouth ADM 36/8935
Agamemnon ADM 36/9149
Polyphemus ADM 36/10368
Anson ADM 36/8927
Leander ADM 36/9571, ADM 36/9572, ADM 36/9573
Dolphin ADM 36/9244, ADM 36/9245
La Nymphe ADM 36/9720
Almene ADM 36/9945, ADM 36/9946
Champion ADM 36/9748, ADM 36/9749
St Eustatius ADM 36/9768
Experiment ADM 36/10070, ADM 36/10071
Reynard ADM 36/10217
Alecto ADM 36/8946
Sally ADM 36/9942
Solitaire ADM 36/9574
Mohawk ADM 36/9970
Stormont ADM 36/10219
St Lucia ADM 36/8890
St Vincent ADM 36/9420
Barbados ADM 36/10148
Germaine ADM 36/9917
Star ADM 36/10090
Lizard ADM 36/10401
Gros Islet ADM 36/9918
Berbice ADM 36/9200
Achilles ADM 36/9660
Boreas ADM 36/10524

Jamaica station 1783

London ADM 36/9137
Preston ADM 36/9461, ADM 36/9462
Ulysses ADM 36/10378
Resistance ADM 36/9730, ADM 36/9731
Actaeon ADM 36/9679
Diamond ADM 36/9212, ADM 36/9216
Alarm ADM 36/9642
Success ADM 36/9737
Tartar ADM 36/9880
Proserpine ADM 36/9221
Fox ADM 36/9648, ADM 36/9649
Ajax ADM 36/9009
Nestor ADM 36/9786
Du Guay Trouin ADM 36/10134
Childers ADM 36/9590
Duc d'Esisac ADM 36/9891
Tobago ADM 36/10225

Jamaica ADM 36/10153
Endeavour ADM 36/10258
Prosperity ADM 36/9935
Post Boy ADM 36/9933
Badger ADM 36/9885
Racehorse ADM 36/10111
Shrewsbury ADM 36/10246
Torbay ADM 36/9176, ADM 36/9177
Licorne ADM 36/10241
Barfleur ADM 36/9191
Bedford ADM 36/9382
Valiant ADM 36/8938, ADM 36/8939
Arrogant ADM 36/9398
Port Royal ADM 36/10149
Arrow ADM 36/10035
Salamander ADM 36/9400
Admiral Barrington ADM 36/9041
Nemesis ADM 36/10164
Alfred ADM 36/9854
Alcide ADM 36/8920, ADM 36/8921
Prince William ADM 36/9198
Belliqueux ADM 36/9141
America ADM 36/9092
Repulse ADM 36/9521
Prathee ADM 36/10372
Marlborough ADM 36/8964
Magicienne ADM 36/9718
Santa Margarita ADM 36/10055
Whitby ADM 36/10388
Spanish Pacquet ADM 36/8889
Camilla ADM 36/10633
Ariel ADM 36/10361
Endymion ADM 36/9224, ADM 36/9225
La Fortunee ADM 36/9957
L'Amables ADM 36/9687
Blast ADM 36/9800
Prince George ADM 36/9167
London ADM 36/9137
Porcupine ADM 36/10534
Pegasus ADM 36/9793



Appendix 6.4– Leeward Islands & Jamaica 1788⁵

⁵ Primary sources for the data are individually listed on the following pages.

	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average
Jamaica - Number of Borne Seamen	919.5	1004.5	1092.75	1238.5	1239.5	1238.5	1189.25	1245.25	1236.5	1231.25	1228.75	1235.75	1236.5
Jamaica - Average Number of Men on Sick List	21.25	12.5	9.25	11.25	17.75	20.0	21.5	30.5	30.0	36.75	37.75	38.5	
Jamaica - Total Number of Men Dead	0	1	0	1	1	1	0	3	1	0	4	1	
Leeward - Number of Borne Seamen	833.5	832.75	832.75	826.25	931.0	929.75	909.75	894.75	896.75	897.75	904.25	905.0	910.9
Leeward - Average Number of Men on Sick List	25.0	27.75	27.75	42.75	33.5	30.0	25.25	24.25	28.5	27.5	30.0	11.75	
Leeward - Total Number of Men Dead	0	0	2	4	0	2	1	5	1	4	1	1	

Leeward Islands station 1788

Jupiter ADM 36/10734, ADM 36/10735

Solebay ADM 36/10650

Maidstone ADM 36/10738, ADM 36/10739

Sybil ADM 36/10975

Bonetta ADM 36/11127

Scorpion ADM 36/10741

Jamaica station 1788

Europa ADM 36/10659, ADM 36/16660

Expedition ADM 36/10672, ADM 36/10673

Amphion ADM 36/10725

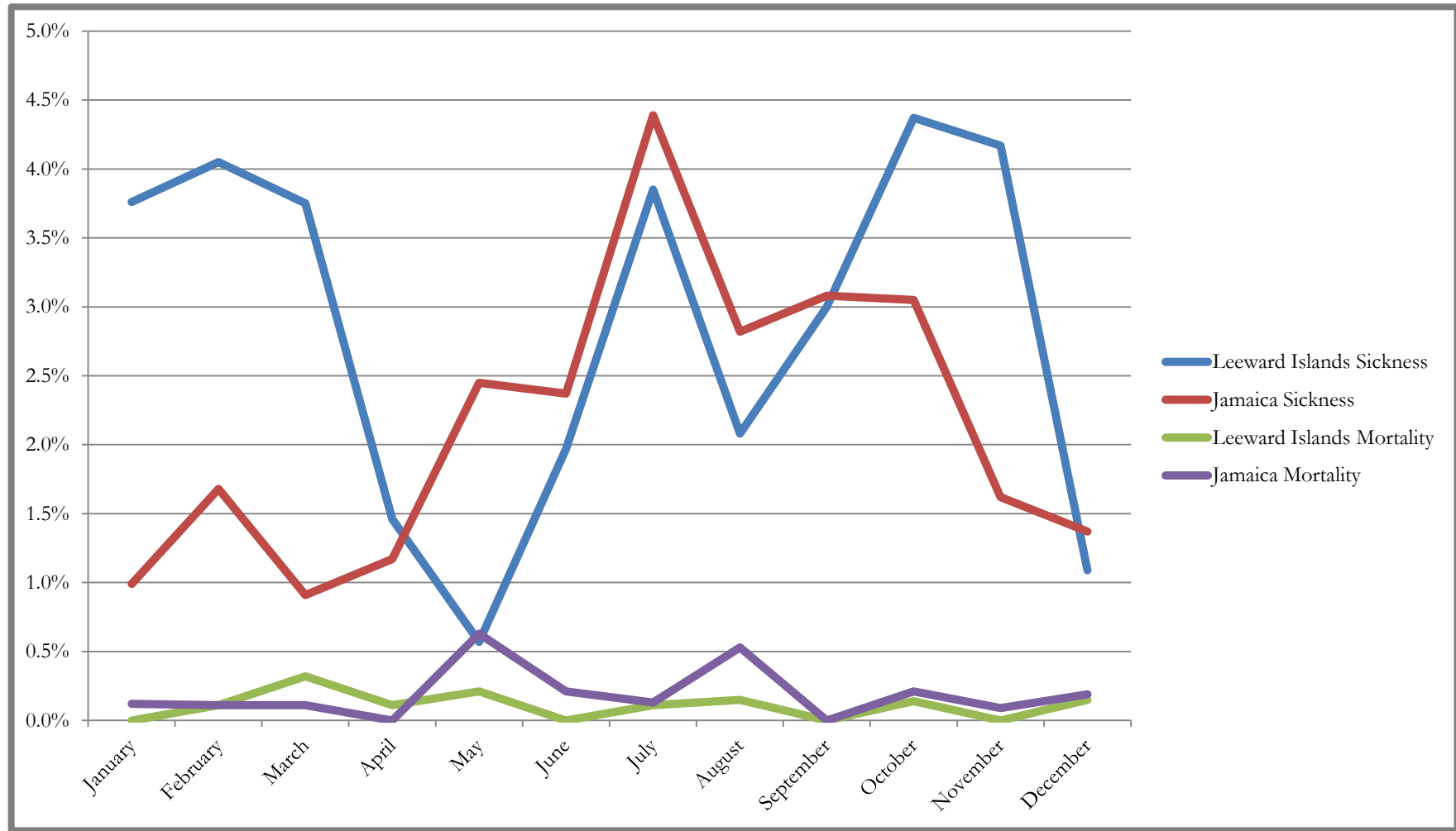
Astraea ADM 36/10729, ADM 36/10730

Cygnets ADM 36/10885

Calypso ADM 36/10889, ADM 36/10890

Aurora ADM 36/10727

Alert ADM 36/10792



Appendix 6.5– Leeward Islands & Jamaica 1790⁶

⁶ Primary sources for the data are individually listed on the following pages.

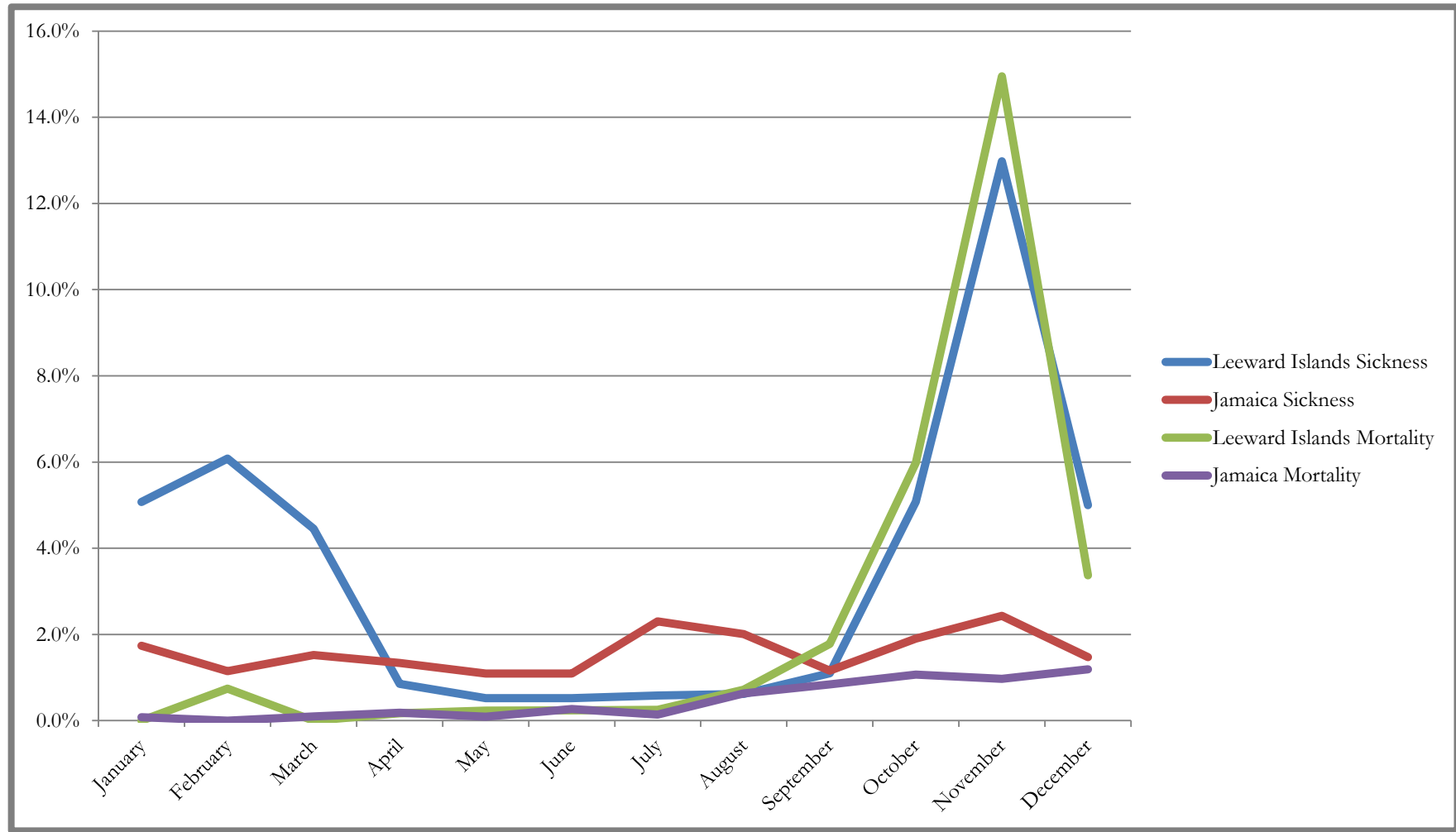
	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average
Jamaica - Number of Borne Seamen	860.25	936.75	935.5	683.0	949.25	958.0	769.0	949.75	965.25	975.5	1158.5	1075.25	1699.0
Jamaica - Average Number of Men on Sick List	8.5	15.75	8.5	8.0	23.25	22.25	33.75	26.75	29.75	29.75	18.75	14.75	
Jamaica - Total Number of Men Dead	1	1	1	0	6	2	1	5	0	2	1	2	
Leeward - Number of Borne Seamen	937.25	939.25	933.0	940.25	1396.0	915.5	935.5	684.75	690.75	692.5	696.25	665.75	1611.8
Leeward - Average Number of Men on Sick List	32.25	38.0	35.0	13.75	8.0	18.0	36.0	14.25	20.8	30.25	29.0	7.25	
Leeward - Total Number of Men Dead	0	1	3	1	3	0	1	1	0	1	0	1	

Leeward Islands station 1790

Jupiter ADM 36/10737
Blanche ADM 36/11009
Maidstone ADM 36/10976
Sybil ADM 36/10976
Bonetta ADM 36/11128
Scorpion ADM 36/10742
Trusty ADM 36/11214
Solebay ADM 36/10982
Proserpine ADM 36/11057

Jamaica station 1790

Amphion ADM 36/10726
Calypto ADM 36/10890
Aurora ADM 36/10728
Alert ADM 36/10793
Centurion ADM 36/11116, ADM 36/11117
Astraea ADM 36/10731
Liberty ADM 36/12034
Advice ADM 36/11173
Diana ADM 36/11130
Brune ADM 36/11125
Juno ADM 36/11034
Serpent ADM 36/11355



Appendix 6.6– Leeward Islands & Jamaica 1793⁷

⁷ Primary sources for the data are individually listed on the following pages.

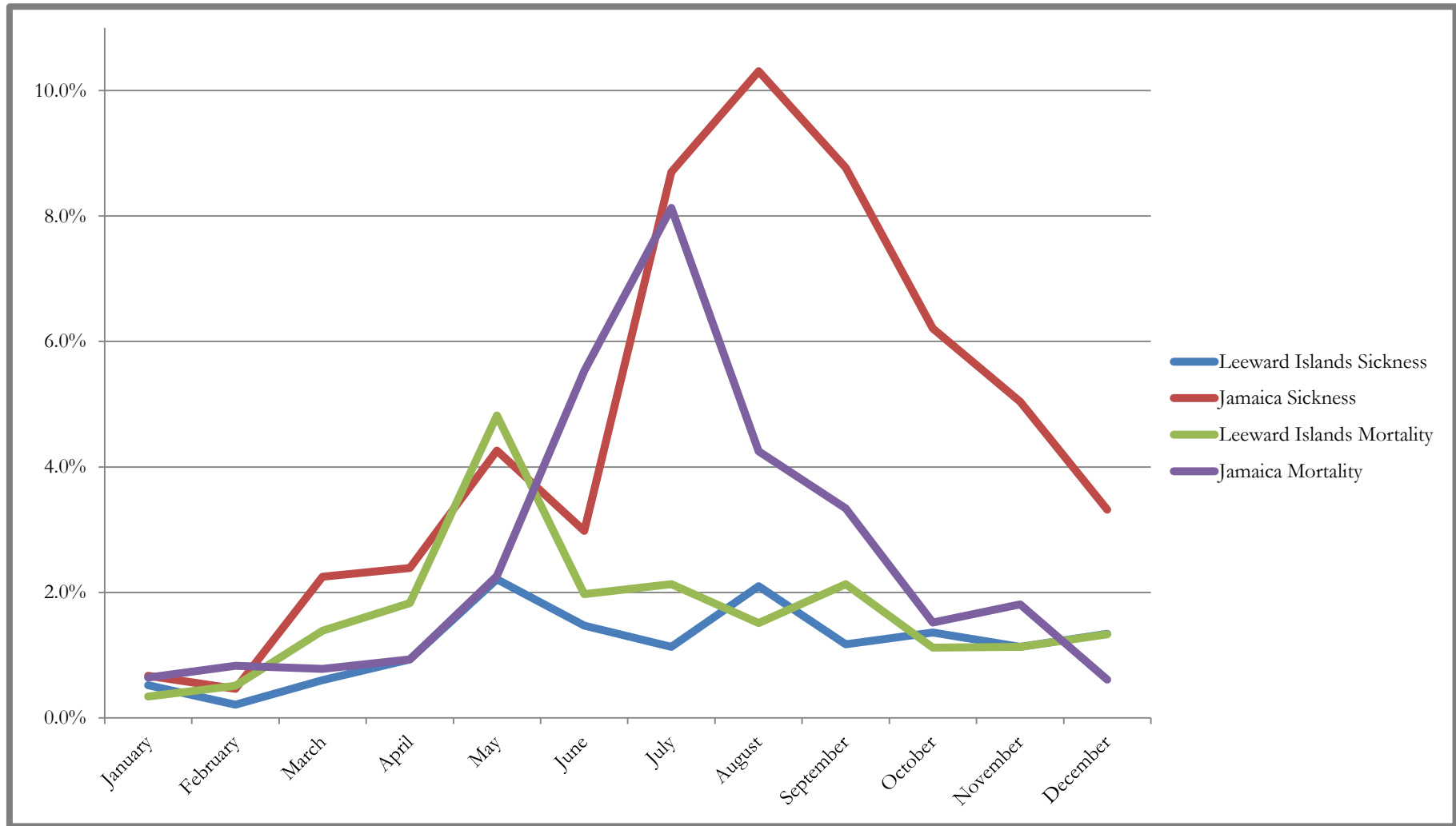
	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average
Jamaica - Number of Borne Seamen	1208.25	1214.75	1022.5	1099.5	1082.0	1125.5	1445.75	947.0	946.75	934.75	1337.5	1509.0	2781.8
Jamaica - Average Number of Men on Sick List	21.0	14.0	15.5	14.75	11.75	12.25	33.25	19.0	11.0	17.75	32.5	22.25	
Jamaica - Total Number of Men Dead	1	0	1	2	1	3	2	6	8	10	13	18	
Leeward - Number of Borne Seamen	666.0	542.5	539.0	1763.0	1763.0	4203.0	3173.75	1247.25	1065.0	1036.0	595.25	534.5	5358.4
Leeward - Average Number of Men on Sick List	33.75	33.0	24.0	15.0	9.25	21.75	18.5	7.75	11.75	52.0	77.25	26.75	
Leeward - Total Number of Men Dead	0	4	0	3	4	10	8	9	19	62	89	18	

Leeward Islands station 1793

Trusty ADM 36/11216
Blanche ADM 36/12176, ADM 36/12177
Perseus ADM 36/11318
Fairy ADM 36/11924
Centurion ADM 36/13833
Experiment ADM 36/12147
Woolwich ADM 36/11983
Nautilus ADM 36/13488
Vengeance ADM 36/11232
Ulysses ADM/11268
Alligator ADM 36/11244
Hannibal ADM 36/11165
Duke ADM 36/11168
Hector ADM 36/11188, ADM 36/11189
Monarch ADM 36/11747
Orion ADM 36/11335
Iphigenia ADM 36/11520
Rattlesnake ADM 36/11483
Solebay ADM 36/11324
Winchelsea ADM 36/11225

Jamaica station 1793

Europa ADM 36/11272
Penelope ADM 36/11981
Proserpine ADM 36/11433
Hyaena ADM 36/11151
Hound ADM 36/11338, ADM 36/11339
Serpent ADM 36/11356
Fly ADM 36/12291
Falcon ADM 36/11492
Helena ADM 36/11498
Advice ADM 36/11173
Hermione ADM 36/12009
La Magicienne ADM 36/13102
Success ADM 36/13190
Goelan ADM 36/11259
Mosquito ADM 36/12001
Flying Fish ADM 36/12012
Triton ADM 36/11284
Alligator ADM 36/11244
Hannibal ADM 36/11165



Appendix 6.7– Leeward Islands & Jamaica 1794⁸

⁸ Primary sources for the data are individually listed on the following pages.

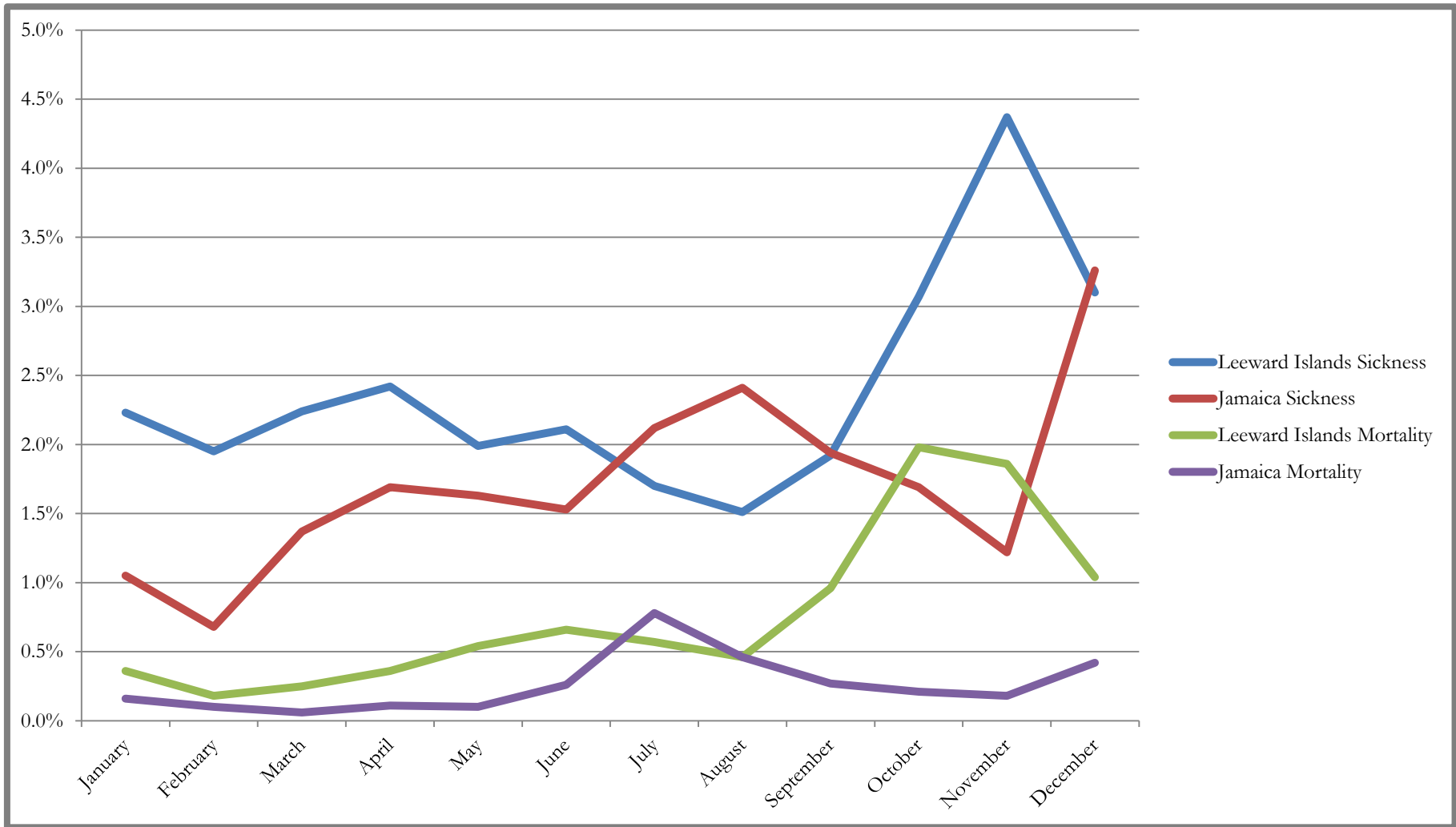
	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average
Jamaica - Number of Borne Seamen	2186.25	2177.25	2694.25	3102.5	3325	3762.75	3504.25	3296.0	2576.75	2492.5	2270.0	1974.5	2780.2
Jamaica - Average Number of Men on Sick List	14.75	10	60.75	74.25	141.5	112.25	304.75	339.75	226	154.75	114.5	65.5	
Jamaica - Total Number of Men Dead	14	18	21	29	75	208	285	140	86	38	41	12	
Leeward - Number of Borne Seamen	2959.75	3919.75	3897.25	4158.5	3837.75	3149.5	1787.25	1718.25	2298.5	2769.25	3013.5	3017.5	6331.5
Leeward - Average Number of Men on Sick List	15.25	8.25	23.25	38.75	84.75	46.25	20.25	36.0	27.0	37.75	34.0	40.5	
Leeward - Total Number of Men Dead	10	20	54	76	185	62	38	26	49	31	34	40	

Leeward Islands station 1794

Bulldog ADM 36/11495, ADM 36/11496
Seaflower ADM 36/11191
Resource ADM 36/11528
Assurance ADM 36/11247
Vanguard ADM 36/11652
Berbice ADM 36/11559
Vesuvius 36/12698
Roebuck ADM 36/11847, ADM 36/11848
Dromedary ADM 36/12332
Zebra ADM 36/11502
Inspector 36/13466, ADM 36/13467
Rattlesnake ADM 36/11483
Irresistible ADM 36/11350, ADM 36/11351
Asia ADM 36/15474, ADM 36/15475
Beaulieu ADM 36/11918, ADM 36/11919
Santa Margarita ADM 36/13156
Blanche ADM 36/12177
Boyne ADM 36/11250
Vengeance ADM 36/11232, ADM 36/11233
Alarm ADM 36/12367
Terpsichore ADM 36/12152
Blonde ADM 36/11389
Ceres ADM 36/13076
Winchelsea ADM 36/11225, ADM 36/11226
Solebay ADM 36/11324, ADM 36/11325
Rose ADM 36/11317
Ulysses ADM 36/11268
Nautilus ADM 36/13488, ADM 36/13489
Woolwich ADM 36/11984
Quebec ADM 36/11594
Experiment ADM 36/12148, ADM 36/12149

Jamaica station 1794

Irresistible ADM 36/11350, ADM 36/11351
Iphigenia ADM 36/11520, ADM 36/11521
Rose ADM 36/11317
Alligator ADM 36/11244, ADM 36/11245
Chichester ADM 36/12527
Marie Antoinette ADM 36/12008
Serin ADM 36/11992
Intrepid ADM 36/11377, ADM 36/11378
Sceptre ADM 36/12272
Europa ADM 36/11273
Penelope ADM 36/11981, ADM 36/11982
Hermione ADM 36/12009, ADM 36/12010
Magicienne ADM 36/13102, ADM 36/13103
Success ADM 36/13190, ADM 36/13191
Hound ADM 36/11339
Fly ADM 36/12291
Goelan ADM 36/11259
Mosquito ADM 36/12001
Flying Fish ADM 36/12012
Powerful ADM 36/11212
Belliguencx ADM 36/11270
Swan ADM 36/11628
St Albans ADM 36/12498, ADM 36/12499



Appendix 6.8– Leeward Islands & Jamaica 1798⁹

⁹ Primary sources for the data are individually listed on the following pages.

	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average
Jamaica - Number of Borne Seamen	5599.0	5802.25	6353.0	6277.0	6101.75	6204.0	6890.75	6257.25	5399.5	5839.5	6317.5	5903.0	8211.1
Jamaica - Average Number of Men on Sick List	59.0	39.25	86.75	106.25	99.75	95.0	145.75	151.0	104.5	98.75	77.0	192.25	
Jamaica - Total Number of Men Dead	36	24	14	28	25	65	214	115	59	48	46	98	
Leeward - Number of Borne Seamen	3630.75	3875.75	4417.75	4711.75	4483.25	3961.25	3524.5	3266.25	3742.75	3728.5	3443.5	3457.5	5298.9
Leeward - Average Number of Men on Sick List	81.0	75.5	99.0	114.0	89.0	83.75	60.0	49.25	72.0	114.5	150.5	107.25	
Leeward - Total Number of Men Dead	13	7	11	17	24	26	20	15	36	74	64	36	

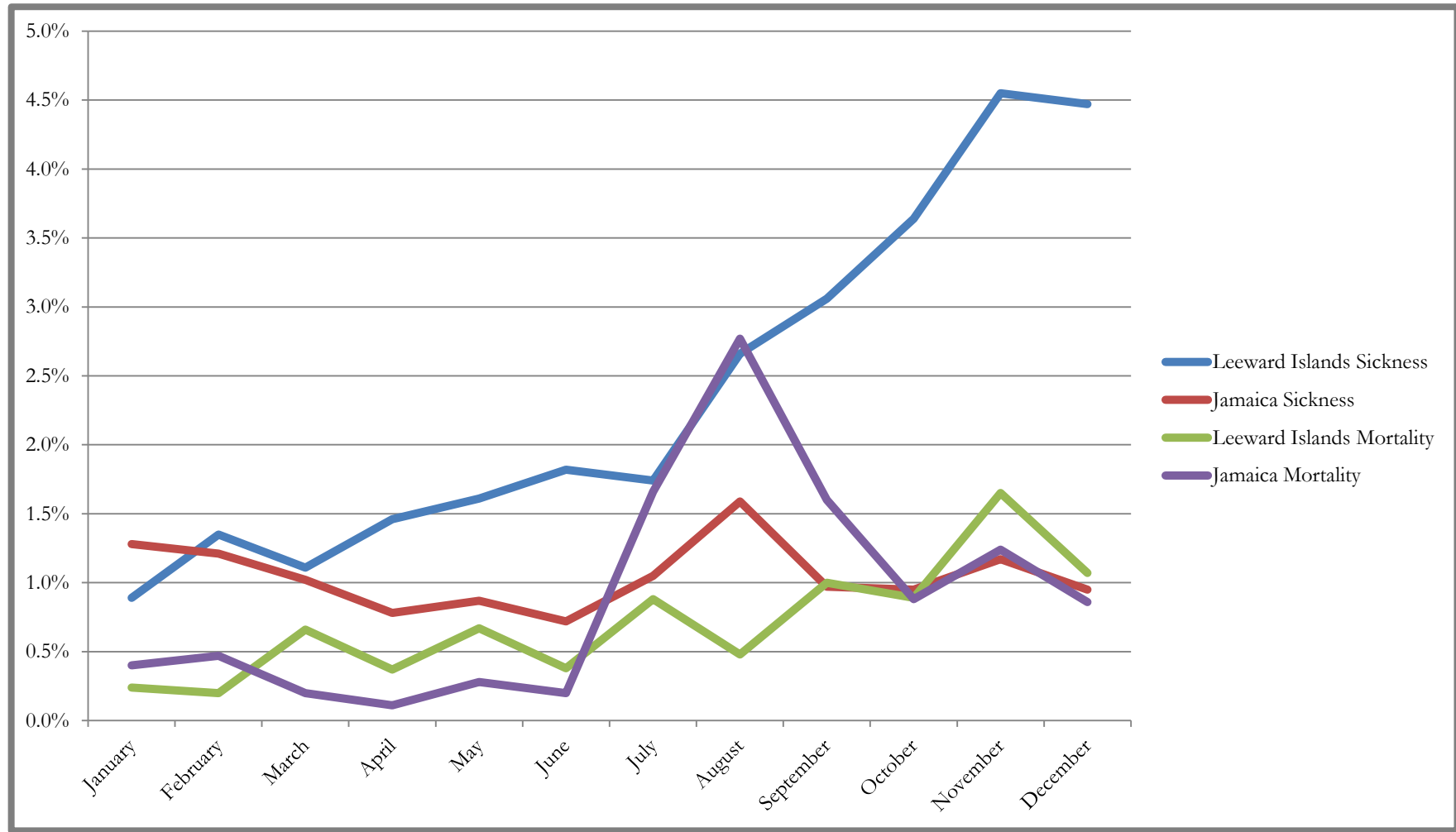
Leeward Islands station 1798

Roebuck ADM 36/11851
Alfred ADM 36/12249
Tamer ADM 36/14396
Amphitrite ADM 36/13340
Prince of Wales ADM 36/12789, ADM 36/12790, ADM 36/12791
Vengeance ADM 36/12135, ADM 36/12136, ADM 36/12137
Invincible ADM 36/12412, ADM 36/12733
Madras ADM 36/13036
Concorde ADM 36/13908, ADM 36/13909
L'Aimable ADM 36/11876
Eurus ADM/14769
Solebay ADM 36/13333, ADM 36/13334
Lapwing ADM 36/13725, ADM 36/13726
La Babet ADM 36/13131, ADM 36/13132
Matilda ADM 36/12022
La Per Drix ADM 36/12548
Victorieuse ADM 36/14721
Favourite ADM 36/12301, ADM 36/12302
Bittern ADM 36/13427
Cyane ADM 36/13439, ADM 36/15058
Scourge ADM 36/13521, ADM 36/13522
Beaver ADM 36/13429
Zephyr ADM 36/13682, ADM 36/13683
Etrusco ADM 36/14759
Terror ADM 36/12666
Requin ADM 36/12783
Hawke ADM 36/13824, ADM 36/13825
Santa Margarita ADM 36/15183
Syren ADM 36/13331, ADM 36/13332
Pearl ADM 36/13225
Frederick ADM 36/14261

Jamaica station 1798

Queen ADM 36/13351, ADM 36/13352
Brunswick ADM 36/12868, ADM 36/12902
Valiant ADM 36/12144, ADM 36/12145
Carnatic ADM 36/13785, ADM 36/13786
Hannibal ADM 36/13671, ADM 36/13672, ADM 36/13673
Thunderer ADM 36/13029, ADM 36/13030
Serpent ADM 36/15019
Thorn ADM 36/12374
Pelican ADM 36/15023
Abergavenny ADM 36/13705, ADM 36/13706
Severn ADM 36/13002
Jamaica ADM 36/12685, ADM 36/12686
Regulus ADM 36/12285, ADM 36/12286
Renommee ADM 36/13348, ADM 36/13349
Adventure ADM 36/13623
Magicienne ADM 36/13106, ADM 36/13107
Ambuscade ADM 36/14901
Aquilon ADM 36/15173
Proselyte ADM 36/13346
Thames ADM 36/13184, ADM 36/13185
Drake ADM 36/14999, ADM 36/15000
Ceres ADM 36/13080, ADM 36/13081
Tourterelle ADM 36/12026
Prompte ADM 36/13329
Stork ADM 36/15134
Rattler ADM 36/14501
Diligence ADM 36/13455, ADM 36/14927
Albacore ADM 36/14987
Merlin ADM 36/14462
Grampus ADM 36/15112
Recovery ADM 36/13681
Mosquito ADM 36/12001
Acasta ADM 36/14474
Dromedary ADM 36/15151, ADM 36/15152
Sparrow ADM 36/14268
Greybound ADM 36/15084, ADM 36/15085
Alarm ADM 36/14729

La Legere ADM 36/14585
Maidstone ADM 36/13201, ADM 36/13202
York ADM 36/13790
Sheerness ADM 36/12990
Trent ADM 36/15226
Amaranthe ADM 36/14983
Lark ADM 36/14565, ADM 36/14566
Roebuck ADM 36/11851



Appendix 6.9– Leeward Islands & Jamaica 1803¹⁰

¹⁰ Primary sources for the data are individually listed on the following pages.

	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average
Jamaica - Number of Borne Seamen	4552.75	4511.5	4531.0	4530.5	3892.25	3522.25	3551.5	3652.5	3440.0	3649.0	3556.75	3733.25	5585.2
Jamaica - Average Number of Men on Sick List	58.5	54.5	46.25	35.5	33.75	25.5	37.25	58	33.5	34.5	41.75	35.5	
Jamaica - Total Number of Men Dead	18	21	9	5	11	7	59	101	55	32	44	32	
Leeward - Number of Borne Seamen	2517.25	2541.75	2288.5	1894.5	1935.75	2101.25	2270.0	2488.5	2294.5	2239.5	2243.75	2329.0	3149.7
Leeward - Average Number of Men on Sick List	22.5	34.25	25.5	27.75	31.25	38.25	39.5	66.25	70.25	81.5	102.0	104.0	
Leeward - Total Number of Men Dead	6	5	15	7	13	8	20	12	23	20	37	25	

Leeward Islands station 1803

Chichester ADM 36/16690, ADM 36/16691
Centaur ADM 36/15686, ADM 36/15685
Excellent ADM 36/15238
Emerald ADM 36/15558
Venus ADM 36/15659, ADM 36/15660
Castor ADM 36/15030
Heureux ADM 36/16223, ADM 36/16224
Hornet ADM 36/15649
Cyane ADM 36/15843, ADM 36/15844
Surinam ADM 36/15561
Osprey ADM 36/16400
Drake ADM 36/15525, ADM 36/15526
Guachupin ADM 36/16395
Ulysses ADM 36/15646, ADM 36/15647
L'Eclair ADM 36/15518
Asp ADM 36/15482
Steady ADM 36/14204
Blenheim ADM 36/15569, ADM 36/15570
Fairy ADM 36/17087
Busy ADM 36/15607
St Lucia ADM 36/17118
Serapis ADM 36/15661
Netley ADM 36/15521, ADM 36/16588

Jamaica station 1803

Leviathan ADM 36/14757
Bellerophon ADM 36/15590
Theseus ADM 36/15987, ADM 36/15988
Vanguard ADM 36/16031, ADM 36/16032
Goliath ADM 36/14820, ADM 36/15826
Ganges ADM 36/15395
Elephant ADM 36/15551
Hunter ADM 36/17100
Racoon ADM 36/16193, ADM 36/16194
Pique ADM 36/16825
Cumberland ADM 36/15492, ADM 36/15493, ADM 36/15494
Trent ADM 36/15230
Desiree ADM 36/15593, ADM 36/15594
Tartar ADM 36/16390
Aeolus ADM 36/15596, ADM 36/15597
Garland ADM 36/14870
Shark ADM 36/17186
Calypso ADM 36/15004
Echo ADM 36/17073
Pelican ADM 36/16047, ADM 36/16048
Snake ADM 36/15048, ADM 36/16386
Stork ADM 36/17193, ADM 36/17194
Revolutionaire ADM 36/16839
Santa Margarita ADM 36/15187
Hercule ADM 36/15643
Port Mabon ADM 36/17135, ADM 36/17136

APPENDIX 7

Copy of the Contract between the Sick and Hurt Board and Henry Lascelles for Antigua and Barbados,
4 May 1744¹

Contracted and agreed this 4th day of May 1744, with the Commissioners for taking Care of Sick and Wounded Seamen and for exchanging Prisoners or War, for and on the behalf of His Majesty on the one Part, and Mr Henry Lascelles of London Merchant, on the other part; That the said Henry Lascelles doth promise and oblige himself, to provide on the Island of Antigua and also on the Island of Barbados, an able Surgeon to take upon him, the care and cure of such Sick and Wounded Men, as shall be set on Shore on the those Islands, from any of His Majesty's Ships; for which he is to be allowed thirteen shillings and four pence Sterling Money for each man, during the Time of their being on Shore; and the said Henry Lascelles doth likewise contract and agree, that every Man so set Sick on Shore, shall be supplied with Quarters, Fresh Beef, Mutton Broth or any other necessary Provisions, as shall be thought by the Surgeon or Doctor convenient for them, and that each Man shall be allowed one Pound of good wholesome bread, one pound of good and wholesome Fresh Meat, and one pint of good and sound Madeira Wine, or in lieu thereof, one Pint of Punch, to those whom the Doctor or Surgeon shall judge proper, with Butter according to the Custom of the Navy. And those so weak as meat shall not be judged fit for, are to have Rice, Eggs, Cheese or any other Provision, in such proportion as shall be sufficient for their maintenance, as the Doctor or Surgeon shall prescribe, and the said Henry Lascelles doth likewise contract and agree to find Fire, Water, Candles, Platters, Spoons and Soap, and the expense of washing, as also proper person that can speak English, as Nurses to attend them, during the Time of their being in the Hospital, so that His Majesty shall not be at any other charge whatsoever than thirteen shillings and four pence beforementioned for the Care and Cure of each Man, and two shillings and to pence sterling per man a day for the provisions and necessarys and one shilling extra for the first twenty days for those men that shall happen to have the small Pox and ten shillings for the funeral of each man that shall die in the Hospital. For which the commissioners for taking care of Sick and Wounded and for Exchanging Prisoners of War, for and on the behalf of His Majesty, do covenant and agree to pay unto the said Henry Lascelles the several process before mentioned, for supplying the said Sick and Wounded Men so sent on Shore as aforesaid and that the said Henry Lascelles at the end of each Quarter, send home his Accounts and Vouchers and drawn Bills of Exchange for the amount of them, upon the Commissioners for taking Care of Sick and Wounded Seamen and for exchanging the Prisoners of War, which Bills are to be attested by the Commander in Chief of His Majesty's Ships at the aforesaid Islands for the time being. This Contract to subsist for twelve months certain from the Twenty ninth day of September next ensuing the date hereof, and until six months warning shall be given on either side. But as by this contract, the said Henry Lascelles is to have Six Pence per man per day, more than he had by the last, merely in Consideration of the great advance on the Prices of Provisions in the said Islands, by Reason of the present War with France and Spain. It is therefore expressly agreed by and between the Partys hereto, that whenever those Exorbitant Prices of Provisions do abate, of which abatement the said Henry

¹ NMM, ADM/F/8, 16 May 1746.

Lascelles promises and engages himself to acquaint the said Commissioners, so soon as the same shall come to his knowledge, the above rate of two shillings and two pence per man per day, shall be reduced according to such abatements, any thing herein to the Contrary notwithstanding to which, each party has interchangeably set their Hands and Seals the day and Year before written.

APPENDIX 8

Estimate for erecting a hospital at Barbados submitted by Commodore Hood in 1804¹

57,500	Superficial feet of pitch pine lumber in the sills, plates, cirders, tie beams, braces, principal rafters, small rafters, principal post, small post, flooring joint and boards @ £20 per no.	£1150/-/-
36,500	Superficial feet white pine plank and boards in boarding the sides, end roof door and window shutters	£450/-/-
11,500	Cypress shingles for shingling sides etc	£431/5/-
10,000	Of 20dy flooring boards	£18/15/-
25,000	10" Nails	£27..5..7½
250,000	6" Nails for shingling	£109..7..6
300	Lbs Spikes	£15..0..0
18	Pairs large hinges for	£16..17..6
100	Pairs small hinges for windows	£50..0..0
100	Pairs of hooks & staples for windows	£6..5..0
50	Pair stay bars for windows	£7..16..3
2	Door locks	£1..5..0
115	Square of workmanship on sides, ends and roof	£460..0..0
115	Square of shingling	£57..10..0
25	Square bottom flooring	£100..0..0
25	Square top floor, grooved and tongued	£125..0..0
625	Days labour attending carpenters while framing	£78..5..0
270	Days ditto attending ditto shingling	£33..15..00
56	Cubical yards masonry in the foundation	£175..0..0
	Carriage of 93,500 feet lumber from Bridge Town to the place the building is intended to be erected	£116..17..6
22,750	Superficial feet of pitch pine lumber in sills, plates, girders, floor joints & boards	£455..0..0
8,500	Feet of white pine plank boards for the roof	£106..5..0
27,000	Cypress shingles	£105..0..0
5,000	Of 20" Nails	£4..13..9
10,000	Of 10" Nails	£6..17..6
54,000	Of 6" Nails	£23..12..6
55	Square of workmanship panning	£82..10..0
25	Square workmanship grooved and tongued	£125..0..0
30	Square roofing	£45..0..0
30	Square shingling	£15..0..0
3,000	Of 12" square tiles for bottom floor	£187..10..0
50	Days for a man laying tiles	£12..10..0
250	Days labourers attending	£31..5..0
	Carriage 31,250 feet of lumber	£39..1..3
	TOTAL BARBADOS CURRENCY	£4669..9..4½
	AS STERLING @ 132 ½ PER CENT	£3524..2..6
	ADD FOR PAINTING & CONTINGENCIES NOT SUBJECT TO EXACT COMPUTATION 5 PER CENT	£186..4..1
	TOTAL STERLING	£3710..6..7

¹ NMM, ADM/F/36, Commodore Hood to Admiralty, 5 November 1804

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