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The papers collected and edited by David Boyd Haycock and Sally Archer are the product of an ongoing seminar series held at the Institute of Historical Research in London and convened by the National Maritime Museum on the theme of "British Maritime History." The topic for 2007 was health and medicine at sea, and with one exception (concerned with Dutch slaving practices) were all about Britain. The common topic running throughout might be termed the health of those afloat, from the Seven Years' War to early steampowered shipping, a theme that has been of keen interest to historians of slavery, migration, and the navy, with a bit of attention from economic historians concerned with trading companies, but that has been too neglected by medical historians per se, aside from the story of the conquest of scurvy. The essays here reflect that balance of professional interest. The one common topic that emerges from most all the papers is the declining mortality rates (and, mainly by implication, sickness rates) of those who went to sea, which is commonly explained as the result of a range of investigations and practices instituted by the Royal Navy and latterly adopted by civilian institutions. The main mechanism of change, then, is institutional coordination and enforcement with the goal of keeping people on board ships healthy, with shipboard surgeons as the persons mainly responsible for action and oversight. While in its general form these conclusions will come as no surprise, the various papers show this in different ways, all contributing new knowledge from the archives and tackling their problems using different methods of investigation. Most historians will therefore probably come to this book looking for particular contributions rather than a single argument. What follows is, then, a summary of each of the diverse chapters, divided into two major themes: military medicine and ship-borne transportation.

Several papers focus on medicine of the British navy. The first contribution is by Erica Charters, on the Sick and Hurt Board during the Seven Years' War. She demonstrates how the board functioned with regard to naval activities, particularly how it managed to keep the Western Squadron healthy enough for a sustained blockade of Brest and nearby French ports. The board faced difficult financial and administrative obstacles, but overcame them successfully enough to make a significant difference. In other words, Charters sensibly depicts the board as an administrative body operating in a real-time political environment rather than as a medical body simply charged with coming up with new plans that could be more or less automatically implemented. But she also shows that the board did indeed experiment with medicines and victuals at sea in attempts to improve the health of the sailors, since they had clearly had the message rammed home that military success depended in large part on a full complement of fit (and well-trained) men. The board therefore introduced portable soup and dried apples, as well as various methods to prevent scurvy and some new medicinals. Charters was awarded the Julian Corbett Prize for Research in Modern Naval History for this essay, and that is deserved: it clearly shows the way for others to also explore the significant effects of naval administration on improving the practice of medicine and hygiene in the modern era.

Another paper (the fourth), by Pat Crimmin, returns to the Sick and Hurt Board during the two decades and more before its abolition in 1806. This period of renewed struggle with the French saw increases in naval manpower from about 7,000 in 1700 to over 114,000 in 1796, rising further to 145,000 in 1812, yet the board saw no proportionate increase in its administrative staff. It was finally declared "unfit for purpose" after changes in its membership, and the government left it weak and open to political charges of financial mismanagement. Ironically, part of the reason for its failure was that the commissioners increasingly became medically trained men rather than aristocrats and members of government, and while these new men better understood the details of their responsibilities in terms of keeping sailors healthy, they were less able to speak up for

their work in the chambers of power. Crimmin approaches her subject from the point of view of an able administrative historian, noting the duties of the clerks, the mechanisms of record keeping and accounting, the contracting for provisions abroad and for care of the sick and wounded, and (from 1796) the duties of examining the qualifications of surgeons for service. These and other responsibilities cost a great deal, and when accounts were in arrears the quality of government debt obligations could be threatened. It became a political scapegoat, and its duties were transferred to the Transport Board. Crimmin also urges other historians to explore further its positive effects on the health of seamen (as Charters has done for the Seven Years' War). She has certainly established a firm framework for supporting informed studies of the interactions between the administration and medical activities of the board.

In between the papers on the board, M. John Cardwell and Michael Crumplin provide careful accounts of Royal Navy surgeons between 1793 and 1815, the first via a prosopography study, the second via a study of their surgical activities, especially aboard fighting ships. Cardwell demonstrates numerically the overrepresentation of Irish and Scottish surgeons and underrepresentation of English ones, their family backgrounds and education, and their career patterns. The opportunities for establishing a comfortable practice were obviously fewer on the "Celtic fringe," so naval service provided a path toward social betterment despite the rigors of the service and its personal dangers (and its lower prestige than army service, at least for surgeons). Many had successful civilian practices after their time with the navy: he reports that the majority lived comfortably, a quarter were truly affluent, and a few even became eminent. The personal discipline and goal-oriented lives that naval service must have reinforced cannot be quantified, but also come through this collective biography, suggesting the powerful if indirect effects of the service on nineteenth-century medicine and science generally. Crumplin's account of the surgical activities that, thankfully, occupied them infrequently but were their chief responsibility is sometimes dramatic. He is clear about the daily routines of the surgeon's life aboard ship, the regular sick calls and accidents, and the mountain of paperwork required. But he also takes on the effects on bodies of roundshot, grapeshot, and gunshot; great wooden splinters; and knives, swords, and hatchets, and how the surgeons dealt with such wounds during and after action. He argues that while it is impossible to develop figures to prove his point, it is very probable that many of the surgical innovations developed in the period had positive effects on the outcomes of many cases, although he thinks the lessons needed relearning in the Crimean conflict.

The last of the studies of naval military medicine is Mark Harrison's account of the West Africa service and its effects on the public health reforms of 1830s and 1840s Britain, which also serves as background to one of his other interests, that of quarantine policy. With Britain's prohibition of the slave trade, the West Africa operations were directed at slavers but faced mortality rates more than double the overall average for the navy (33 percent compared to 14 percent). The Niger expedition of 1841-42 sent three steamships up river to establish antislavery treaties with local rulers and to bring new economic and agricultural models to the region. Its aims were met, but the fever that broke out in August went on to devastate the crews and created public interest and concern in Britain. Harrison qualifies the views of Philip Curtin about it, discounting some of his arguments while agreeing with him that it led to a vigorous debate in Britain about the nature of various kinds of fevers, and that its experiments with doses of quinine led to the general use of this new extract (although Harrison also argues that while quinine had important uses as a treatment it had less benefit as a prophylaxis). More generally, Harrison writes, the expedition caused the welfare of sailors to become a part of the debate

about national interest, with the chief medical officer of the expedition, Dr. James O. McWilliam, becoming a public figure. Then in 1845 the feverridden British vessel *Éclair* limped back into port only because of volunteers coming aboard at one of the Cape Verde Islands (Boa Vista), many of whom also contracted fever and perished; it then came to public notice that about one-tenth of the population of Boa Vista also died of fever, and investigations were launched into whether the visit of the *Éclair* was responsible. McWilliam went to see, and declared it so, but others argued otherwise. The subsequent vigorous debates about reform saw the establishment of a political alliance between those who wanted to improve the health of sailors, free-traders, and doctors who denied the contagious nature of tropical fevers. But these debates took place in a Britain that increasingly agreed that lives could and should be protected through the implementation of proper sanitary measures. In other words, the debates about the medical consequences of naval affairs on the coast of Africa helped to stimulate the sanitary reform movement of the period. The annual death rates in the navy also fell.

Four further papers take up questions about the health effects of being transported by sea. Hamish Maxwell-Stewart and Ralph Shlomowitz provide a synthesis that pulls together figures from the trade in African slaves to the Americas, British and Irish convicts sent to Australia, British and Irish immigrants to Australia, British and Irish immigrants to New York, African indentured labor to the West Indies, Indian indentured labor to various destinations, Chinese indentured labor to the Americas, and Pacific Island indentured labor to Queensland and Fiji. Unsurprisingly, the highest mortality rates by far were among the slaves (about sixty per one thousand per month), but the rates of death among African indentured laborers were almost as high (close to fifty per one thousand per month); Chinese and Indian indentured laborers suffered about half as badly (about twenty-five and twenty, respectively),

while convict labor died at about eleven per one thousand per month. Immigrants to New York were almost as likely to die as the convicts. Infant and childhood mortality was also high. But by the end of the nineteenth century, adult immigrants to Australia almost always made it. The differences had something to do with changes in the ships themselves over time, but the enacting of administrative reforms at embarkation sites, aboard ship, and at debarkation points clearly made a huge difference, even in the Middle Passage.

Two chapters later, Robin Haines studies the migrant voyages to Australia in the age of sail, and finds that the better training and greater responsibility of surgeons, and the effects of regulation, improved conditions considerably. About three-quarters of a million immigrants arrived in Australia between 1831 and 1900, and they stood the best chance of all the migrants of making the trip in a healthy condition, largely because they were financially assisted by the Australian government, which did not wish to lose its investment by having its future citizens die in route. Indeed, Haines shows that regulation in imitation of Royal Navy initiatives, with the surgeons being charged as the responsible parties for overseeing and recording the daily routines of hygiene and medicine, had greatly beneficial effects. Only 2 percent of the assisted migrants died at sea, and three-quarters of these were under the age of three (half under the age of one). For adults, then, despite the long duration of the voyages and the common complaints of seasickness, especially in the southern seas, the risk of death was not significantly different than if the voyage had never been undertaken, and the possibilities of flourishing at the other end were very high.

The contrast with the chapter before could not be greater. Simon J. Hogerzeil and David Richardson produce a close examination of Dutch slaving practices from 1751 to 1797, reinforcing the view that such terms as the "Middle Passage"

should be expanded to include the total time those in bondage spent aboard ship, since they traveled to various ports for long periods as the captains purchased further chattel slaves, and spent time in port at the destination while sales were underway. From the day-to-day accounts of Dutch slavers in the service of the Middelburghsche Commercie Compagnie, the authors establish the pattern of purchases as the ships sailed down the coast of Africa before turning out toward the Caribbean with their human cargo. They find that a very large number of slaves were acquired at the last minute, especially on the Windward Coast, with boys and girls being purchased first, women being brought aboard throughout, and men added last. They speculate that perhaps this was due to fear of enslaved men, but possibly it was due to the higher mortality rates and purchase prices (at both ends of the journey) for men, making their late loading economical. With an extended view of the Middle Passage, then, they can begin to disaggregate the mortality levels according to age and gender, to length of time aboard ship, and to both portside confinement and shipboard conditions. The mortality rates evoke conditions that help to explain why, even among the captains or surgeons, very few free men ever served on more than two slaving voyages.

Finally, in the last paper, Laurence Brown and Radica Mahase examine the fate of the almost one million migrant workers who left the Indian subcontinent as indentured workers between 1834 and 1900, often on very long journeys. As with other essays here, their sources are mainly official records, but they are also aware of the differences in medical and hygienic outlook between the ships surgeons and the south Asian passengers. Many passengers seem to have concealed any illness from the surgeons until they could not be hidden, seeing official medicine as a potential means of exerting power over themselves, although surgeons sometimes intervened on behalf of the migrants to protect them from confrontational captains and crew. Many passengers were

taken on in ill health, sometimes suffering emaciation, since indentured labor was a last resort for many, and conditions aboard ship continued to be overcrowded and poorly ventilated. For the surgeons, too, life aboard a "coolie ship," while far better than aboard a slaver, was far from ideal, with low pay and large pharmaceutical outgoings, as well as often recalcitrant patients and frequent episodes of contagions, such as dysentery, running through the ship. But their sanitary surveillance nevertheless made a difference, and the figures supplied by Maxwell-Stewart and Shlomowitz show the mortality rates dropping from about twenty per one thousand per month early in the century to about seven later in the century; indeed, for adults, they ended up at not much greater risk of death than British and Irish migrants to New York.

Is there anything to conclude from such a diversity of historical experiences? Certainly, it reinforces the view that the great successes of the nineteenth century in reducing mortality rates came from improvements in hygiene rather than in better medicines or surgery. It is clear here that these often had to be enforced since they were not always voluntarily adopted. There are many places at which the authors also point to the great burdens of responsibility put on the shoulders of ship surgeons to oversee the routines that gradually alleviated some of the conditions that made for ill health and worse. The surgeons became the administrators for a regulatory regime that, by the later eighteenth century, had clearly come to see an investment in human capital, as well as the preservation of health and life, as an investment in the wealth and power of Britain. Behind such measures lay the armed forces. A nation at sea flourished because of the lead taken by administrators and accountants armed with effective powers of coercion. That theme we have heard before. But the fine historical detail of these accounts help to put real flesh onto that skeleton.

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