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**Salem Maritime National Historic Site
Salem, Massachusetts**

The Medicine Chest

By John Frayler, Historian



Pickled Fish and Salted Provisions
Historical musings from Salem Maritime NHS
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“Every vessel of one hundred and fifty tons or upwards, navigated by ten or more persons in all, and bound on a voyage beyond the United States, and every vessel of seventy-five tons or upwards, navigated by six or more persons in the whole, and bound from the United States to any port in the West Indies, is required to have a chest of medicines, put up by an apothecary of known reputation, and accompanied by directions for administering the same. The chest must be examined at least once a year, and supplied with fresh medicines.”¹

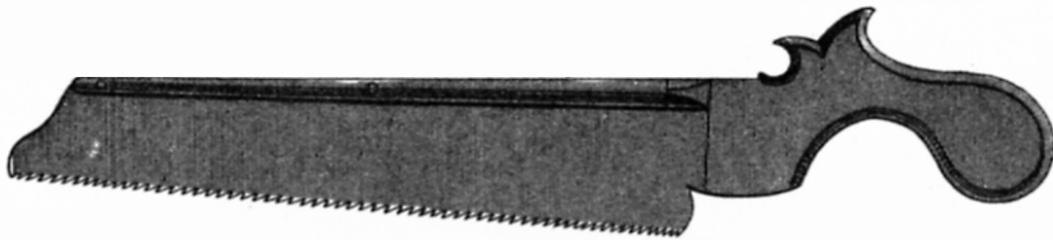
Following his own short career aboard Boston vessels engaged in the California hide trade documented in *Two Years Before the Mast*, seamen’s advocate and authority on admiralty law Richard Henry Dana, Jr., cited numerous provisions of the Acts of Congress in his 1841 handbook for seamen. In *The Seaman’s Friend*, written to educate the maritime community in the laws and procedures to be observed by Customs officials, shipmasters, ship owners, and the seamen themselves in the conduct of their duties, responsibilities, and protections under the law, Dana addressed the requirement for adequate medical supplies and treatment. The health of the seamen was an item of serious concern to all parties involved. It encompassed a number of related areas, such as adequate food, living conditions, punishment for infractions of the rules aboard

¹ Richard Henry Dana, Jr., *The Seaman’s Friend; Containing A Treatise on Practical Seamanship* (Mineola, N.Y. 1997), p. 210. This citation draws on the Acts of Congress for July 20, 1790, section 8, and March 2, 1805, chapter 45, as referenced by Dana in his 1841 edition of *The Seaman’s Friend*.

ship, and the fate of a seaman who required hospital care in a foreign port. It was also frequently neglected.

Shipboard medical concerns, then and now, break down into two general categories, accident and illness.

Aboard naval vessels the potential for serious wounds was, naturally, much greater than in the merchant service, but severity was a common denominator. It mattered little if a falling spar was shot down or broken by a storm when it crushed a man, or if a declared enemy or a pirate fired the cannon shot. The consequences of such an injury were often beyond the skill of the seaman's companions to deal with effectively with any hope of cure. In many instances, attempts to save a life required amputations, which were then performed without anesthesia, sometimes resorting to the ship's carpenter's saw.



A surgeon's amputation saw

Naval vessels often had qualified surgeons aboard who provided the best care that circumstances and medical technology would permit, but in many cases, including the extraction of diseased teeth, it was not far removed from butchery. Shipboard response to accident in the Age of Sail was about at the same level of effectiveness as today's first

aid. If the bleeding was stopped, broken bones set or removed, the injury bandaged and the patient was still alive, the effort was a success. Then the general health and constitution of the patient became the critical factor in the recovery process. In a time before germ theory was understood, the natural resistance of an individual to infection determined the outcome. The potential for contamination of a wound by bacteria was high due to poor hygiene and the lack of sanitation inherent to ships of the time.

For the most part, going to sea was a young man's calling. Seamen, most in their prime years, were about as healthy as they could ever expect to be. However, seafaring subjected them to risks above and beyond what they would have experienced had they remained at home. Below deck the close, damp, inhospitable environment fostered communicable diseases. Ships crawled with insects and rats. Filth accumulated in the bilges. Food stores were frequently rotten or infested with vermin. Fresh water went foul. The diet was monotonous and lacked vitamins necessary for maintaining good health. The work required physical dexterity and agility and could be exceptionally hazardous. Extended voyages to distant, often hostile climates provided even greater opportunities for mishap and disease.



A 19th century tooth extractor

Some conditions found among seamen two hundred years ago were considered “sea,” or occupational diseases. These were scurvy, typhus, and consumption (pulmonary tuberculosis). In addition to these were found various types of fevers and “fluxes,” intestinal disorders originating from a multitude of causes, frequently resulting from inadequate sanitation and rotten food.

Scurvy, a deficiency of ascorbic acid (vitamin C) was all too common aboard ships making long voyages and naval vessels on station for extended periods without access to supplies of fruits and vegetables. Entire crews were decimated. The initial symptom, fatigue, progressed to include poor healing of wounds, leg edema, gum disease and loss of teeth, back and joint pain with hemorrhaging and, finally, death if vitamin C was not introduced. Available nutrition beyond salted provisions determined the length of onset; ten weeks at sea could put a crew at serious risk. The disease was well known by the seventeenth century. In 1601, Captain James Lancaster, in the service of England’s newly chartered East India Company, used lemon juice as a preventive measure aboard his ship, *Red Dragon*, for as long as the supply lasted.² But Captain Lancaster’s observations and recommendations were quickly forgotten. Various theories were put forward as to the causes, and there was no general agreement on the cure by the medical profession until 1753, when the results of controlled experiments aboard H.M.S. *Salisbury* in 1747 were published by Royal Navy Surgeon’s Mate James Lind

² Giles Milton, *Nathaniel’s Nutmeg* (New York, 1999), pp. 78, 79.

(1716-1794) in *Treatise of the Scurvy*. These findings demonstrated beyond any doubt that orange and lemon juices were the best remedies (lime juice was substituted for a time during the nineteenth century but was found to be less effective). Despite Dr. Lind's efforts, the use of lemon juice was not made compulsory in the British service until 1795.³ This decision was influenced by the continuing efforts of Dr. (later, Sir) Gilbert Blaine (1749-1834) to augment the recommendations published by Dr. Lind forty-two years earlier.

Typhus, actually a group of bacterial diseases, flourished aboard ship due to inadequate control of vermin. Typhus variants are transmitted among humans by body lice (typhus fever, or goal fever), and the fleas present on rats. Symptoms include fever, chills, rash, pulmonary difficulties such as pneumonia, and possibly death. Control of these diseases was sometimes a by-product of the economic benefits of exterminating vermin that damaged a ship's cargo and the ship itself. Ships were sealed and fumigated with toxic substances such as sulfur or mercury fumes, a process that was reasonably effective. The relationship between typhus fever and body lice was not recognized until 1909, when Dr. Charles Nicolle of the Pasteur Institute in Paris made the connection.

Consumption (pulmonary tuberculosis) was another disease that long afflicted seamen due to their living conditions, overcrowded in confined spaces with inadequate ventilation

³ Peter Kemp, *The Oxford Companion to Ships & the Sea* (London, 1976), p. 763.

and poor hygiene. In an environment where a common cold or flu could easily evolve into pneumonia and other life-threatening situations, coughing and sneezing also spread consumption, a contagious bacterial infection of the lungs. Symptoms include fever, fatigue, weight loss (consumption was called the “wasting” disease), and coughing up blood. There was not much hope of curing consumption in the days before modern medicines, but isolation and fresh air were considered helpful.

Tropical and semi-tropical diseases also impacted the seaman’s health. Yellow fever, or Yellow Jack as it was called, is a viral disease frequently contracted along the coasts of West Africa and South America. Author Nathaniel Hawthorne’s father, Captain Nathaniel Hathorne of the Salem brig *Nabby*, died of yellow fever at Surinam (Dutch Guiana) in 1808.⁴ It proved exceptionally risky for the crews of slave ships waiting to secure enough captives for a profitable venture. It was thought to be a contagious disease until 1900, when Dr. James Carroll of the U.S. Army identified transmission by mosquitoes as the source. Symptoms include a wide range of conditions from fever to coma, with jaundice and delirium being prominent.

The other major mosquito borne disease of major consequence was malaria. The disease was commonly thought to be caused by bad air (from the Italian “mal-aria”). The symptoms are similar to yellow fever. The same Dr. Lind who wrote on scurvy addressed malaria in *An*

⁴ Edwin Haviland Miller, *Salem Is My Dwelling Place: A Life Of Nathaniel Hawthorne* (Iowa City, Iowa, 1991), p. 25.

Essay on Diseases Incidental to Europeans in Hot Climates (1768). He recommended taking small doses of cinchona bark, the source of quinine, as a preventative measure. It is still one of a number of compounds used for that purpose today.

Incidents ashore caused, hopefully, only minor injuries resulting from drunkenness and cases of venereal diseases that required attention once back aboard ship.



A 19th century engraving of a seaman and some tools of his trade

Sometimes contagious diseases, such as small pox, contracted by a crewmember while in a foreign port or brought aboard by a passenger before the symptoms were apparent, could infect a ship's company before reaching the next port. Upon arrival, the ship would be denied permission to land by port authorities and forced to remain in quarantine until the disease ran its course. Just such an incident is described by Customs Inspector Hezekiah

Prince, Jr., at Thomaston, Maine, May 5, 1827.⁵ Captain Colley's brig *Thomas and William* arrived from Ireland after a 19-day passage. "One of his crew (Washington Boyd) is sick and he fears he has the small pox. He has 68 Irish passengers on board and has 50 tons of coal. He anchored about ½ mile below the wharf and the captain came on shore. Doct. Kellogg was sent on board but could not determine with certainty whether it was really the small pox, but fears it is. I rode immediately to St. George to notify the selectmen of that town to take measures to have Boyd removed from the brig and that she might be cleansed." "A red flag has been hoisted and persons are prohibited from coming from the vessel or going to her and every necessary precaution taken to keep the infection, if there is any, from spreading. But if it is the small pox, I fear it has already been communicated ashore as the crew had some of them come from her before we got on board. We however hope for the best."

The unfortunate seaman Boyd died during the night and was brought ashore for burial on May 6. The vessel was released from quarantine on May 11, no other cases having developed.



A 19th century tourniquet

⁵ Hezekiah Prince, Jr., *Journals of Hezekiah Prince Jr. 1822-1828* (New York, 1965), pp. 361-363.

As the works of Dr. Lind demonstrate, the practice of medicine had reached a high level of sophistication among competent practitioners. At least in the Royal Navy most seamen actually had access to better medical care than they could have afforded at home. They needed it to survive the harshness of their living and working conditions, and it was in the best interest of the navy, particularly during the manpower shortages of the Napoleonic Wars.

Conditions in the Continental, and later Federal, United States Navy mirrored those of the Royal Navy to some extent. Recruiting and retaining seamen was not always easy due to manpower shortages caused by the attraction of potential recruits to privateering and other more lucrative pursuits. The involuntary pressing of men into American naval service was not an option. But organizationally patterned after the Royal Navy, American naval vessels employed many of the same traditional practices, which included the provision of a competent surgeon aboard ship when possible and an adequately stocked medicine chest as prescribed by law.

When the Salem-built United States frigate *Essex* departed for service in December 1799, she had a substantial medicine chest (painted and trimmed, with separate large handles) aboard in the charge of the ship's surgeon, Hector Orr.⁶ It is not known exactly what the content of the medicine chest itself was (an additional large, painted store

⁶ Philip Chadwick Foster Smith, *The Frigate Essex Papers: Building the Salem Frigate 1798-1799* (Salem, MA, 1974), pp. 282-285.

chest is also mentioned). There is a list of medical supplies, including approximately seventy-five items that seem to be reasonably expected to be included in smaller quantities, although many of the items are listed by the pound rather than the ounce. This is in addition to bulk quantities of such things as 276 pounds of barley, ten yards of muslin, four sheepskins, whalebone splints, three sets of surgical instruments, and a 6¼-gallon keg of lemon juice. Eighty-seven containers, including various sized bottles, vials, and galley pots, are mentioned.

Without a specific inventory, it is difficult to determine exactly what the medicine chest of a commercial vessel such as the East Indiaman *Friendship* of Salem contained, since compliance with the Act of 1790 (and earlier traditions) left the contents to the experienced judgment of “an apothecary of known reputation.” A typical merchant vessel’s medicine chest would have been intended to address the needs of a ship’s crew of about twenty men rather than the hundreds aboard naval vessels like the frigates *Essex* or *Constitution*.

Whether the chest was large or small, the medical practices of the time called for substances encompassing a wide range of products. Eighteenth-century medicine combined traditional herbal drugs, oils, spirits (various alcohol-based compounds), poisons, salts, and sugar or honey to “help the medicine go down.” Bleeding the patient was another

aspect of treatment very commonly practiced “to remove excesses from the blood.”⁷

Frequent references mention “the bark,” or “Peruvian bark” (quinine) for treating fevers of all descriptions. Olive oil was used as a laxative and for treating burns. Magnesia (magnesium carbonate) and Glauber’s salt (sodium sulfate), the traditional “dose of salts,” cleared the intestines, as did castor oil. Ipecac, derived from a Brazilian plant, was used to bring up accidentally swallowed poisons. And the list goes on.

Some compounds seem quite sinister by today’s standards. Calomel, once widely prescribed as a purgative, and for the treatment of syphilis, was in fact a form of mercury, mercurous chloride. Sugar of Lead (lead acetate) was used to treat eye problems and gonorrhea. Elixir of Vitriol (a mixture of sulfuric acid and brandy, flavored with cinnamon and ginger) was used as a tonic for stomach ailments. And then there was opium, commonly included in pain medicines such as Laudanum, and as addictive then as it is now.

In the hands of an experienced physician, many of the remedies worked according to plan. In the isolated world of a vessel at sea, the results were often less than effective. On land, a sick person usually had the luxury of being warm and dry, with friends or relatives to attend to their needs and the advantage of a nourishing diet. At sea,

⁷ C. Keith Wilbur, M.D., *Revolutionary Medicine 1700-1800* (Chester, CT, 1980), p. 10.

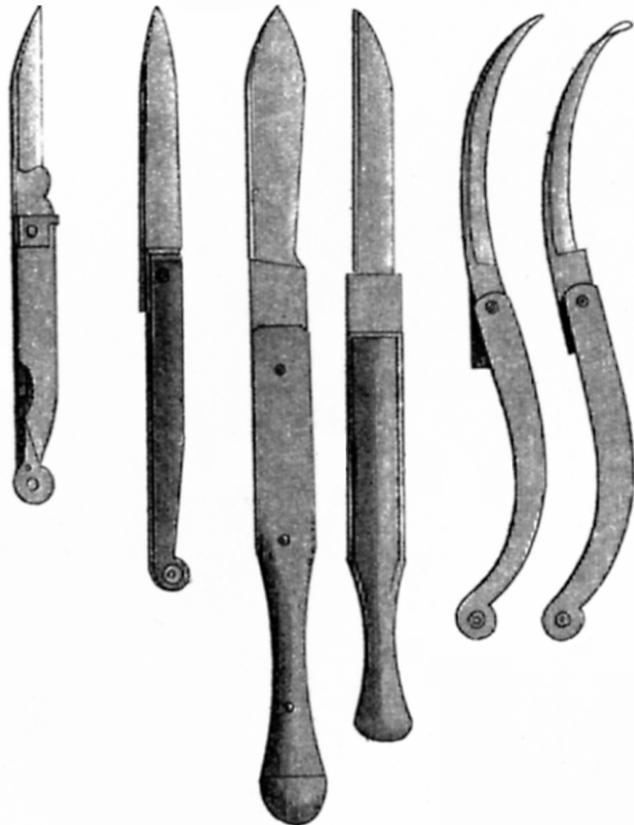
aboard merchant ships, administering medicine was the responsibility of the master. With luck, a cook experienced in folk medicine, traditionally called “the doctor” aboard ship, could play a large part in a seaman’s recovery by providing the best available food to the sick man and looking after him. Instruction books for using the contents of the medicine chest were made available to shipmasters. Sometimes numbering the containers to correspond with the listed ingredients and applications in the instruction book simplified use, in effect, practicing medicine “by the numbers” (use bottle three for X, Y, Z).

An interesting aspect of shipboard life is mentioned more than a few times in the literature of the period, malingering or feigning illness to avoid work. This was sometimes addressed in a punitive manner, such as administering a sound beating or a flogging (in the days before Dana’s reform efforts), being shunned by one’s fellow seamen, or treating a purported or very minor illness to the full extent of the medicines available. If one was not seriously sick to begin with, in an environment where the cure could sometimes be more unpleasant than the complaint itself, substantial doses of some of the items in the chest could cause great discomfort, or worse. Harsh physical punishment for infractions of the ship’s rules often put the offender in need of medical treatment otherwise unnecessary.

The ship was responsible for a sick seaman’s cure and sometimes there were situations when it was necessary to be sent ashore for treatment. A system for the establishment

and support of hospitals for sick and disabled seamen was instituted under the Act of 1798, to be funded through hospital money, a twenty cent per month deduction from each seaman's wages.⁸

In *The Seaman's Friend*, Dana explains the laws concerning the responsibilities of the ship owner and the sick seaman concerning payment for medical treatment. He sums it up as follows: "The seaman is to be cured at the expense of the ship, of a sickness or injury sustained in the ship's service; but if he contracts a disease by his own fault or vices, the ship is not chargeable. A seaman is entitled to proper nursing, lodging, and diet. If these cannot be had, or are not furnished on board the vessel, he is entitled to be taken on shore to a hospital, or to some place where these can be obtained... He is entitled to be put on shore if his disease requires it; it is seldom that proper care can be taken of a seaman on board ship."⁹

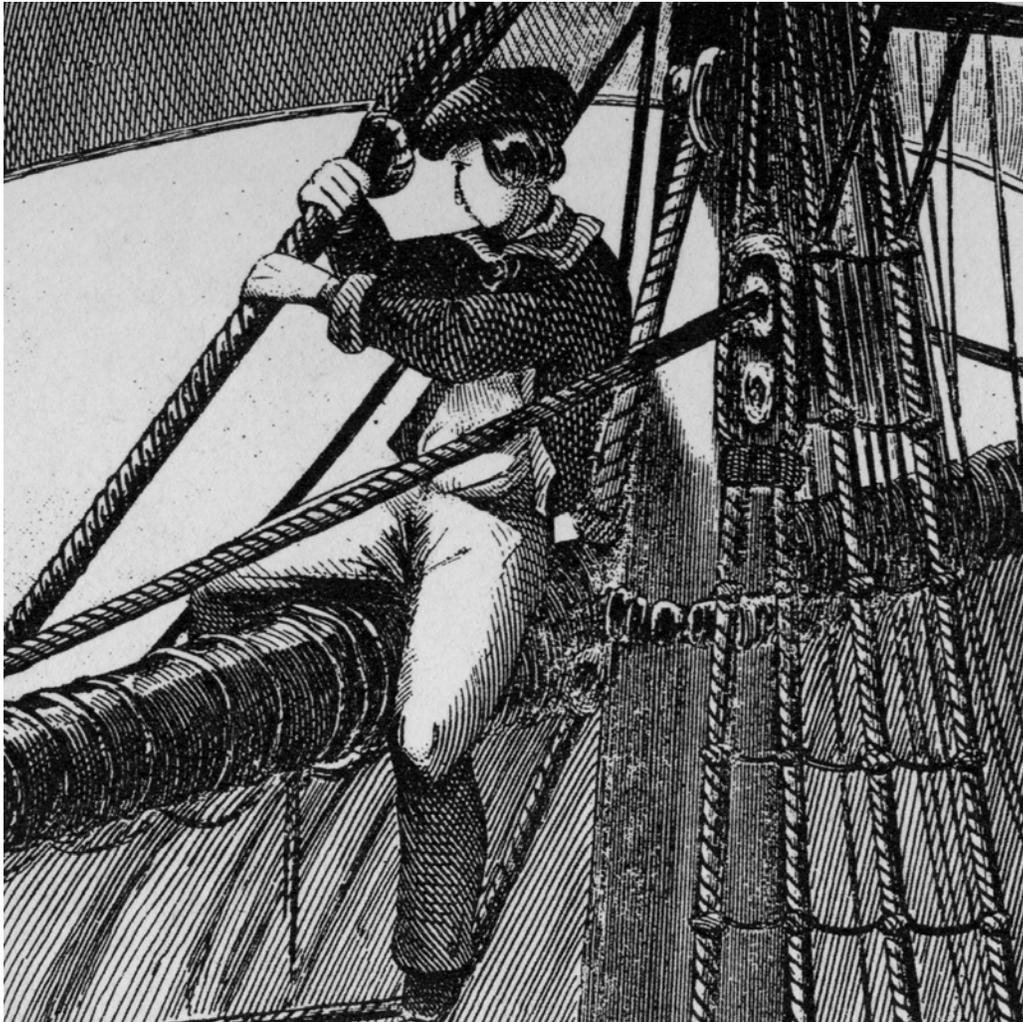


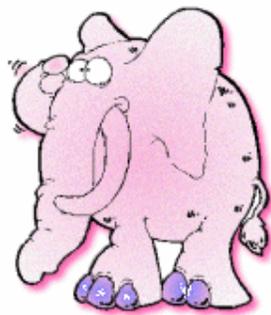
Assorted surgeons' scalpels

⁸ Dana, p. 211.

⁹ Dana, pp. 210, 211.

Just how effective was the medicine chest during the Age of Sail? Dana's statement reflects the consensus of legal thought on the issue: **"...it is seldom that proper care can be taken of a seaman on board ship."**





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