

What Lurks in our Collections?

By Cipperly Good, the Richard Saltonstall Jr. Curator of Maritime History



Museum staff perform a balancing act between access to and preservation of our collections. This was put to the test recently when our intern Felix Lakin researched the contents of our homeopathic medicine chest and found some disturbing medications within it. It set off a series of phone calls to our Waldo County Emergency Management Agency, Maine Department of Environmental Protection, and finally to the Maine State Police Bomb Squad.

What follows are excerpts from Felix's research report with some thoughts and questions we asked ourselves.

Medicine chest made by Thompson & Capper, Homeopathic Chemists at Liverpool and Birkenhead, England. Captain David Nickels of Searsport acquired this medicine chest while in command of the 199' ship LUCY A. NICKELS on a cargo trip to Liverpool circa 1880. Shipmasters acted as ship's doctors for crew and passengers alike. Objects Collection, 194.

Excerpts from: Contents and Significance of the Medicine Chest

Aboard the LUCY A. NICKELS

By Felix Lakin, Geiger Museum Exploration Intern

Along with preventative medicine, the primary medical doctrine followed [aboard ship] was homeopathy, or the belief that the same substances that cause illness in healthy people can cure a sick person. The result of this was the presence of things like poison ivy, belladonna, and iodum in a ship's medicine chest. Additionally, the contents of the medicine chest were closely related to herbalism, making medicines from plants available, as can be seen in the inventory of the chest done by previous PMM staff:

* 100 *

CONTENTS OF THE MEDICINE CHEST USED BY CAPT. DAVID NICKELS
SEASPORT, ON BOARD THE SHIP "LUCY A. NICKELS".

TOP

HEPAR SULPH 5
CINA A.
RHUS TOXICOD 5^x
YAMELIS VIRG.(HAMA.V.) 1^x
CARBO VEG. /
IPECACUANHA 1^x
RHUS TOXICOD 1^x
DULCAMARA 3^x
FERR. MET 6
SULPHUR 6
IPECACUANHA 1^x
CACTUS GRAND 3^x
ANTIMONIUM TAR
CHINA OFFICIN. /
PHOSPHORUS 3^x
COFFEA CRUD 3^x
COLOC. 3^x
LYCOPodium 3^x
SPONGIA 3^x
HYDRASTIS CAN. 1^x
ARICA KONT. 1^x
POLOPHYLLUM P. 1^x
NITRIC ACID 1^x
SPIGELIA 3^x
PHOSPHORIC ACID 5
CALCAREA CARB 6
ACONITUM NAP. 3^x
VERATRUM ALB 3^x
APIS MEL 1^x
IRIS VERSICOLOR
IGMATIA A. 1^x
NUX VOMICA 1^x
HYOSCYANUS B. 3^x
GITALIS 3^x
SALIA 6
CUPRUM ACET 3^x
CINICIFUGA RAC. 3^x
MERCURY..
MERCURIUS SOL.
DROSER
CHAMOMILLA 3^x
KALI BICROM 3
JELSEMINUM 1^x
IODIUM 1^x
CANTHARIS 3^x

DRAWER - MIDDLE

ACONITUM NAP. 1^x
ARSENICUM ALB. 5
BELLADONNA 1^x
BRYONIA ALB.
CHINA OFFICIN.
MERCURIUS COR. /
NUX VOMICA 1^x
PHOSPHORUS 1^x
PUEBATILLA NIG. 1^x
VERATRUM ALB. 1^x

DRAWER - BOTTOM

TINCTURE OF ARICA
TINCTURE OF CALENDULA
TINCTURE OF HAMAMELIS
CANPHOR PILLS
TINCTURE OF LEDUM PALUSTRE.
TINCT. RHUS TOXICODEADRON.

Items of focus are underlined in red.

One example of herbalism in the LUCY A. NICKELS medicine chest is *Pulsatilla nigricans*. *P. nigricans* is a flower in the buttercup family. It is traditionally used for treating mental disorders, cataracts, “uterine afflictions,” conjunctivitis, acute meningitis, coughs, to remove tape worms, treat ear infections and clear any area full of mucus, etc. The active chemical compounds include flavonoids and triterpenoid saponins. *P. nigricans* is also the source of oil of anemone, which has two main active compounds: anemonin which can clear mucus and anemonic acid (anemonic acid is inert/does nothing) (Sadaf, R., Younus, I., & Maqbool, S. (2017). “A Mini-Review on Chemical Constituents and Pharmacological Uses of *Pulsatilla nigricans* L.” *Hakim Mohammed Said* 60, no. 3(2017): 108). It is still used in at-home medicine and is not poisonous. This was one of the treatments that was both effective and safe. Unfortunately, not all of the contents of the chest were so user-friendly.

While medicines are, by definition, designed to heal, many of them are also quite deadly when misused. One such treatment option from the ship’s medicine chest was phosphorus. Phosphorus (P) was first isolated as a pure element in 1669, which was very exciting to the scientific community in Europe as it was the first element to be isolated since antiquity. It is highly reactive due to its electronegativity, so reactive that it only occurs as phosphate in nature. Phosphorus burns and explodes on contact with air and water, reacting with oxygen so much that it is used as a military grade explosive. Due to this phenomenon, it is surprising that the phosphorus never detonated on contact with the water that was highly prevalent on wet ships. It is typically isolated as red or white phosphorus, with white phosphorus being both the more volatile variety and the one used in Victorian naval medicine. It was used to cauterize wounds.

Curatorial reflections: According to the theory of homeopathy, homeopathic Phosphorus is diluted from its original strength so that none of the active mineral is still present, (<https://www.fda.gov/drugs/understanding-over-counter-medicines/homeopathic-products>). Homeopaths claim phosphorus temporarily relieves respiratory ailments, gastrointestinal issues, bleeding disorders, and skin conditions, (<https://homeopathy-uk.org/self-help-remedies/phosphorus/>). Was the phosphorus in our medicine chest full-strength or diluted so as not to be a danger to our patrons and collections? With the fluctuating heat and humidity in our exhibit buildings and onboard ship over the last 150 years of this medicine chest’s existence with no repercussions, could it really be full strength? The report from the Maine State Police Bomb Squad states that Phosphorus can become more volatile over time. Without testing we will never know, so we made the safe decision to send the chest to the Maine State Police Bomb Squad for detonation.

Not all dangerous compounds in medicine chests were explosive. In fact, they are the exception, as most of the danger in medicine chest came in the form of poisons. For example, belladonna (*Atropa belladonna*) is a plant in the Solanaceae family, the same family that has tomatoes and peppers. It is more commonly known as deadly nightshade and is known to be highly toxic due to its high atropine concentration. According to the United States Forest Service, “In addition to atropine, which does indeed affect the pupils of the eye, several other highly toxic and potent psychoactive tropane alkaloids are found in belladonna, including hyoscyamine and scopolamine. All parts of the plant are toxic, but the sweet, purplish-black berries that are attractive to children pose the greatest danger. Symptoms of poisoning include rapid heart beat, dilated pupils, delirium, vomiting, hallucinations, and death due to respiratory failure.” However, it was used in shipboard medicine as a tincture to treat “recurring spasm of the gastro-intestinal tract” until after WWII (United States Public Health Service and War and the War Shipping Administration, *The Ship’s Medicine Chest and First Aid at Sea*. United States Government Printing Office, 1947). It was dosed by a glass medicine dropper starting at 10 drops, with the dose increasing by 1 drop daily until either the patient was cured or they began displaying symptoms of nightshade poisoning, at which point the dose would be lowered back into that patient’s “safe” range (*The Ship’s Medicine Chest*).

Nitric acid, or HNO_3 , is a highly corrosive inorganic acid. It is used industrially in metal etching and industrial manufacturing. Due to its corrosiveness, it causes the human skin to burn and melt (it is used in acid attacks). However, that is only an issue if the nitric acid is spilled on someone. Unfortunately, it is also highly dangerous when airborne. Inhaling excessive fumes of nitric acid (which evaporate off any liquid nitric acid) can cause a pulmonary edema (lungs filling with fluid, which causes drowning). This edema may not develop for several hours after exposure, and can be deadly without treatment, “The volatile fumes of nitric acid can cause serious and extensive damage to the body’s mucous membranes. The clinical manifestations can range from mild irritation of the upper respiratory tracts to third-degree burns of the respiratory tracts. When high-concentration nitric acid fumes reach the patient’s lower respiratory tract, it can cause inhalation lung injuries such as pulmonary edema and obliterative bronchitis” (Zhao, Zhenqing, Yinbing Jin, Huaibao Ma, and Mingfeng Lu. 2025. “Pulmonary Ultrasound-Guided Management of Delayed Pulmonary Edema Secondary to Nitric Acid Fumes Inhalation: A Case Report.” *BMC Pulmonary Medicine* 25 (1), <https://pubmed.ncbi.nlm.nih.gov/40604786/>).

Curatorial reflections: As with the phosphorus, homeopathic Nitric Acid is diluted so that none of the active mineral remains. Homeopaths use it to treat mucous membrane issues, skin conditions, and emotional sensitivity, (<https://homeopathy-uk.org/self-help-remedies/nitricum-acidum/>). Again, we asked ourselves, can we be

sure that the nitric acid was a homeopathic dilution and not the full-strength version? As with the phosphorus, nitric acid becomes more volatile over time, so we made the decision to go with the safest route with the absence of analysis of the vials' contents.

Carapichea ipecacuanha, or just Ipecac, is a member of the Rubiaceae family. It grows in the northern part of South America, specifically Brasil, Colombia, Venezuela, and the part of Peru east of the Andes mountains. It has been used for thousands of years by native peoples in the region as well as onboard European ships since contact (Ferreira Júnior, Washington Soares, Margarita Paloma Cruz, Lucilene Lima dos Santos, and Maria Franco Trindade Medeiros. 2012. "Use and Importance of Quina (*Cinchona* Spp.) and Ipeca (*Carapichea ipecacuanha* (Brot.) L. Andersson): Plants for Medicinal Use from the 16th Century to the Present." *Journal of Herbal Medicine* 2 (4): 103–12, <https://doi.org/10.1016/j.hermed.2012.07.003>). Ipecac is an emetic, a substance that causes vomiting. It was used to treat recurring fevers by "cleansing the system." This would often be followed by a dose of calomel if the acting physician decided the bowels were not yet "cleansed." After the bowels were empty, theoretically removing the cause of the fever from the body, the symptoms of the disease would be treated with quinine, or, in its absence, charcoal. Ipecac was also used to treat typhus, again by attempting to remove the cause of the disease before restorative treatments began (Parsons M.D., Usher. *Sailor's Physician*. Providence, RI: Barnum Field & Co., 1824. 16). It is strange that ipecac was the only member of Rubiaceae in the chest as the whole family of plants were quite popular in Victorian naval medicine, particularly quinine and cinchona or "Peruvian Bark" to treat almost any infectious disease. It is possible that the company producing the chest had no access to these compounds, or that they were not recorded in the inventory, or that they were intentionally left out.

Additionally, the medicine chest on LUCY A. NICKELS had no opiates. This was strange at the time, as opium and specifically laudanum were the primary painkillers in maritime medicine and were used to treat anything from a broken arm to typhus. In its place, a North American plant called *Arnica montana* or just arnica was used. *A. montana* flowers can be used for painkillers, usually applied for joint pain. However, in the case of this specific medicine chest, it may have been used as a general painkiller in the absence of any opiates.

The transition to modern medicine was gradual. At any given time, the captain or first mate administering medical help on a ship considered what they were doing to be "modern medicine." The medicine chest aboard the LUCY A. NICKELS is a snapshot of the medicine chest in the 1880s, and was, at its time, considered to contain excellent modern

treatments. For our purposes, however, we can consider the transition to modern medicine to coincide with the end of the Age of Sail, roughly 1900. Medicine chests continued to be produced and sold to both commercial and military vessels in the early 20th century. At the time, germ theory was becoming more widely accepted as scientific fact and the names of illnesses were transitioning from their traditional names to modern ones. Books such as *Manual on Ship Sanitation and First-Aid for Merchant Seamen* (1923) and *The Ship's Medicine Chest and First Aid at Sea* (1947) are direct descendants of medicine chest manuals in the Victorian era. Medical treatment and practice is built off of past trials and experiments, and the ship's medicine chest over time is an example of how that evolution takes place.



Out of an abundance of caution, we contacted the Maine State Police Bomb Squad. According to their report, they removed all vials holding medicines or residue of medicines and disposed of them. We are grateful that they returned the medicine chest and any empty vials they found. While we may no longer have the medicine vials themselves, we do have the box and the stories it tells about shipboard medicine during the age of sail, without the concern of the potentially hazardous contents.



Bob Shannon from the Maine Department of Environmental Protection carefully removing the medicine chest.



Intern Felix Lakin standing near where the medicine chest was on display.