1067-A0-40 **Katherine Socha***, Saint Mary's College of Maryland, Dept. of Math and Computer Science, 18592 E. Fisher Rd., St. Mary's City, MD 20686. *Sea battles, Benjamin Franklin's oil lamp, and jellybellies.*

"During our passage to Madeira, the weather being warm, and the cabin windows constantly open for the benefit of the air, the candles at night flared and run very much, which was an inconvenience. At Madeira we got oil to burn, and with a common glass tumbler or beaker, slung in wire, and suspended to the cieling of the cabbin, and a little wire hoop for the wick, furnish'd with corks to float on the oil, I made an Italian lamp, that gave us very good light..." (Benjamin Franklin, December 1, 1762, letter to John Pringle).

Observations of real phenomena have led to mathematical modeling of surface water waves, interfacial waves, and Lagrangian coherent structures, among other examples. This expository talk will provide a quick tour of the (mostly advanced undergraduate level) mathematics needed to describe idealized versions of the rings formed by striking a surface of water with a large object (like a bomb), the oil-water waves observed by Founding Father Benjamin Franklin on his voyage to Madeira, and the motion of nutrient-laden water being swept into the underbelly of swimming jellyfish. (Received June 10, 2010)