

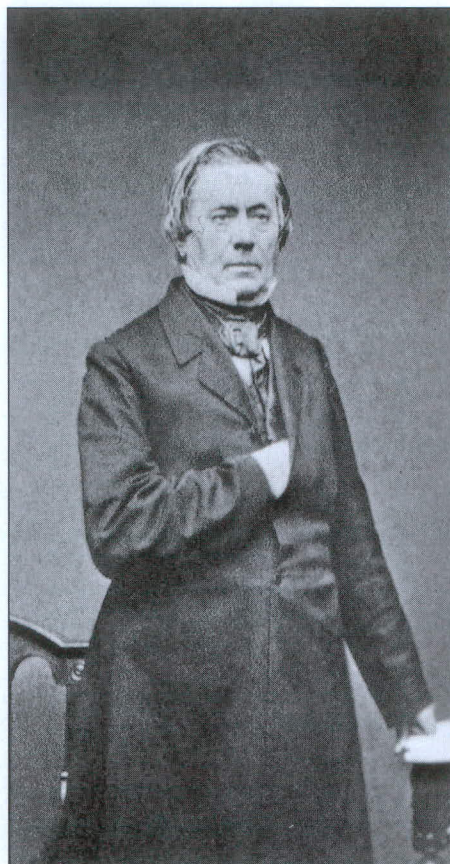
Joseph Henry... A LIFETIME SENSE OF DUTY

By Cheryl Shelton Roberts

Professor Joseph Henry was involved with the Light-House Board from its inception in 1852 and was an integral part of infusing science into the American lighthouse service. He was one of our country's first practicing enthusiasts for original and applied research. At the request of President Millard Fillmore, Henry joined the Light-House Board. But, one must ask, why would a learned man like Joseph Henry, known as the "Great Old Man of Washington," serve as a volunteer for the Light-House Board? He was a distinguished gentleman, stately in his appearance and deeply-connected politically and scientifically. His greatness as a scientist was unparalleled; indeed, his pioneering work in electricity and magnetism led to the invention of the telegraph, the electric motor, and the telephone. Henry was the one everyone ran to for advice when experiments failed, including Alexander Bell for his "multiple telegraph."

In a letter to Asa Gray, November 1852, Henry said, "I would not of my own accord have engaged in the business of the Light-House Board but as I was especially requested by the President to assist in reorganizing this important part of the executive duty of the government I could not well decline." (Volume 8, *The Papers of Joseph Henry*, Smithsonian Institution Press, Washington and London, 1998).

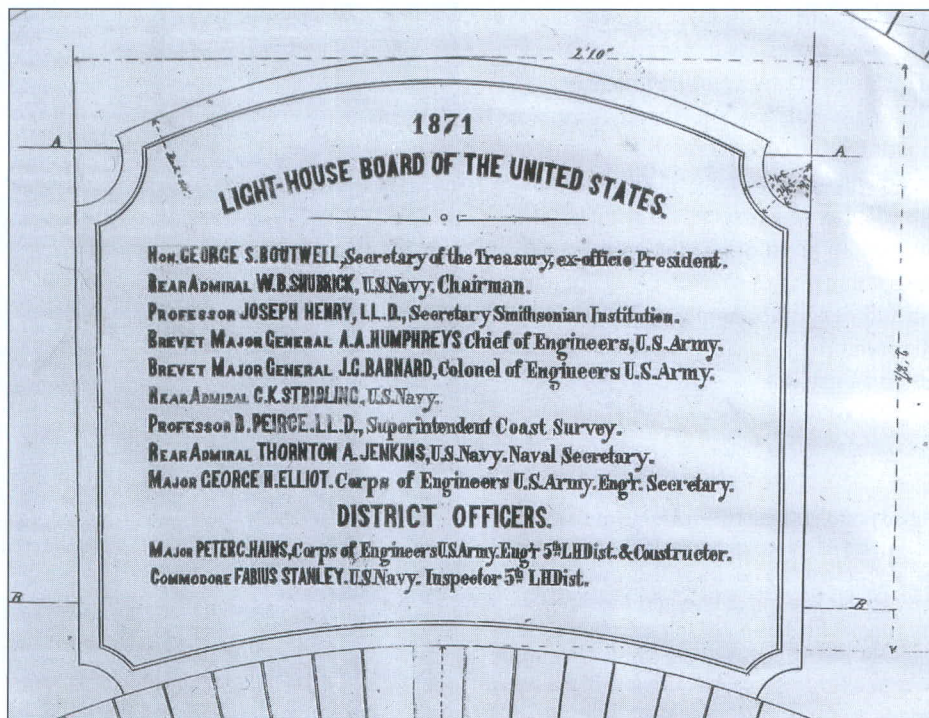
Frank Millikan, Smithsonian Assistant Editor of the Joseph Henry Papers Project, stated that "Henry himself suggests that he did it out of a sense of duty and because the President of the U.S. asked him to do it. It's pretty hard to turn down a request from the President. He had made his groundbreaking discoveries as a physicist during the 1830s and 40s. When he came to the Smithsonian, administrative duties allowed him little time for pure research. But his service on the Light-House Board did allow him time, especially during the summers, to engage in experiments that we would characterize as applied research. So the Light-House Board was a way he was able to keep up his skills in experimental research."



Rothenberg summed up Henry's career with the Light-House Service in his article, "Joseph Henry: Science Advisor," in stating, "Henry devoted even more time to the country's system of lighthouses. In 1852, he was appointed by President Millard Fillmore as one of the six members of the United States Light-House Board. Henry remained on the board for the next

Left – Joseph Henry, an oil on canvas by Henry Ulke, property of the National Portrait Gallery, Smithsonian Institution, NPG.79.245. The portrait was done in 1875 when Henry was Chairman of the Light-House Board and during its golden era of lighthouse building in America.

Below – Pride in one's work was evident in this plaque that once adorned the inner wall at the Cape Hatteras Lighthouse. After taking over as "constructor," Peter C. Hains made sure his name appeared with the esteemed members of the Light-House Board. The plaque read like a Who's Who of the military, architectural, and scientific communities. This drawing of the plaque is all that remains because the government removed it promptly. Drawing from the author's collection.



twenty-five years, serving as chairman for the last six years of his life. Thus, he had a role in the oversight of a government science-technology activity with an annual budget of more than \$500,000 in 1852, or sixteen times the Smithsonian annual budget at the time." As a volunteer member of the Board, "...he generally spent from six to eight weeks each year working full-time for the board during his vacations from the Smithsonian. He helped make the board into a center for applied research in optics, thermodynamics, and acoustics."

Henry's belief in scientific knowledge and research shaped the direction of the Smithsonian during his tenure as a center focusing on research as opposed to becoming more an educational repository for the products of research and exploration.

Millikin added, "Henry's good friend and adviser, Alexander Dallas Bache, was the other civilian scientist member of the new Light-House Board. Bache was the head of the Coast Survey, which had a budget as large as the LHB's and, of course, also played a large role in improving marine navigation. Together the two scientists made quite a team."

Knowing these facts about Henry and Bache, it is then not surprising that in 1863 the two were there with President Abraham Lincoln when seven well-known scientists of the day met to sign the Charter of the Academy of Sciences.

Frank Millikan reveals in his article "Joseph Henry's Grand Meteorological Crusade," of the October/November 1997 issue of *Weatherwise*, yet another facet of Henry's incredible career. "By 1849, Henry had established a network of some 150 volunteer weather observers. A decade later there were more than 600... Enlisting enthusiastic volunteers was less of a problem than digesting their observations—as well as those of lighthouse keepers, explorers, railroad men, and even missionaries... Henry foresaw the storm-warning potential of the telegraph early on "By 1870, Henry, [Increase A.] Lapham, and others convinced Congress to pass a bill to put storm warnings (and later, weather forecasts) into the hands of the U. S. Army's Signal Service, the predecessor of today's National Weather Service." Today, Henry is known as the father of the National Weather Bureau.

A Self-Made Man who loved experiments

Henry loved experiments, he lived experiments, and he got up each day to work on experiments. The work at the Smithsonian was largely a philosophical endeavor. At the Light-House Board, however, he could continue his successful career as a natural philosopher, now known as "physicist." Amazingly, Henry led a crusade over a 20-year span to correct the 30 previous years of what can arguably be called neglect for American lighthouses. He insisted that each lighthouse be placed on carefully chosen sites, had substantial foundations, and were fitted with the superior Fresnel lens. For instance, he had a hand in the engineering of the mighty Minot's Ledge Lighthouse. His infusion of science into the LHB brought top West Point engineers to the drafting boards to design and build the classic coastal lights from the Florida Keys to Cape Lookout and St. Augustine, Barnegat, and beyond.

The professor was rewarded for his fine leadership with an appointment as chairman of the Light-House Board in 1871, following in the footsteps of the venerable Admiral William B. Shubrick whose topographical genius is credited for giving America her grandest lighthouse at Cape Hatteras.

Humbly, Henry admitted that, although he had been a professor at Princeton from 1837-48, he was largely self-taught until adult age. Prior to his years as a professor at Princeton, he attended the Albany Academy at the advanced age of 22. The academy today would be considered an advanced high school or equivalent to a college. He believed in learning by doing and with hands-on experience that one could become an excellent teacher. We can now see why the Light-House Board required that all keepers be able to read and write. Studying and understanding "Instructions to Keepers" manuals became mandatory. And this standard of excellence heralded by Henry became the hallmark of the U.S. Lighthouse Service that has been credited as being one of the most productive and economically-sound government organizations ever formed.

As one of the foremost and renowned physical scientists of his day, his experiments were the basis for all major changes ongoing in the lighthouse service between 1852 and

his death in 1878. It was his decision to use lard oil as a less-expensive alternative to whale oil, later adopting mineral oil (kerosene) as the preferred, cheaper illuminant; he encouraged experiments with fog horns and did his own experiments as well. It is interesting perhaps to note here that Henry experimented with colza oil that was used frequently in Europe. Also known as rapeseed oil, it burned bright and clean since it was a vegetable derivative from the mustard family; however, American farmers could not be convinced to grow the crop from which the oil was a derivative due to its low profit margin.. Today, over 130 years since Henry saw the value of this fuel supply, colza oil is still considered a possible alternative fuel source.

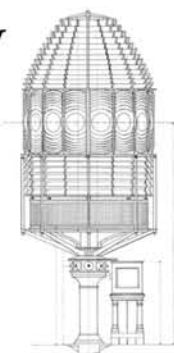
During his tenure as Light-House Board chairman, Professor Henry carried out extensive research on transmitting sound over water, set a standard of exchange of technological advances amongst the lighthouse services of the world, and he personally endorsed each announcement to mariners when a new lighthouse was lit. It was with pride that he presided during the Golden Era of building the classic, tall, coastal lighthouses of the 1870s on both coasts and the Great Lakes.

His desire was to learn and to pass that learning to the next generation. And, like a kid, he loved noisy things. Fog horns, whistles, bells, gongs, trumpets, and sirens! His extensive experimentation on these devices must have been like heaven on earth for him. Initially, he allowed an outside contract to J.H. Alexander for fog horn tests; however, he ran into a bit of a problem. For about six months, the poor residents of Baltimore had to endure the endless bedlam of Alexander's tests. In a brief note to Henry, Alexander was annoyed by the demands of "cessations" and "thus to manifest all becoming respect to the authorities." It sounds like Mr. Alexander not only was arrested...he also lost all his loud toys. Henry gladly began his own tests.

It was undoubtedly this insatiable curiosity and childish wonder, that Joseph Henry never outgrew, which enabled him to leave the world a respected legacy in the U.S. Lighthouse Service. Far ahead of his time, when this eighteenth-century man crossed the bar in 1878, *The New York Times* headline read, "A Loss to All the Nation."



Join the U.S. Lighthouse Society Today or Give the Gift of Membership!



Restoration & Preservation



Thomas Point Shoal Lighthouse, MD

The U.S. Lighthouse Society has donated to many lighthouse preservation projects throughout the U.S. Most recently we were honored by being presented with the Preserve America Stewardship Award from The White House for our restoration work at Thomas Point Shoal Lighthouse.

*To learn more visit
www.uslhs.org
or
call Headquarters at
415-362-7255*

Help Support Our Important Mission!

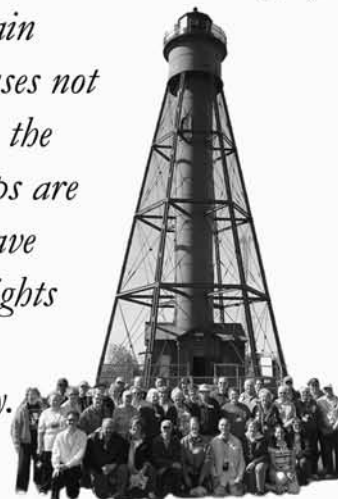
Education



The Keeper's Log magazine is the only one of its kind and has been published quarterly since 1984. Receive this award-

winning publication as a benefit of membership.

The Society organizes domestic and international lighthouse tours. Many of our excursions gain access to lighthouses not normally open to the public. These trips are a great way to have fun, see lots of lights and learn about lighthouse history.



Tinicum Lighthouse, NJ