

LIGHTHOUSE DICTIONARY

aids to navigation—Any devices, manmade or natural, that assist mariners to navigate. Manmade devices include lights, sounds, electronic signals, shapes, and colors.



acetylene-powered navigation device—A light or sound signal powered by acetylene, a colorless, highly flammable gas, C₂H₂.

aero-beacons—Powerful lights designed for airports that were also employed by the Coast Guard in the 1940s to date.

Annual Report of the Light-House Board to Congress—An annual report on the state of aids to navigation in America from 1852 to 1910. The Bureau of Lighthouses issued an annual report from 1910 to 1939.

Arc of visibility—The start and ending degrees for an angle where light can be seen.

Argand lamp—Invented by a Swiss scientist Amie Argand, it consists of an oil reservoir, a lamp with multiple hollow wicks and a hipped glass tube chimney.

assistant keeper—A position or positions employed to help the lighthouse Keeper perform his duties. Some light stations had as many as four assistant keepers.

automated navigation—One that operates continually or intermittently without human control.

barometer—An instrument for measuring atmospheric pressure.

bowsprit—A spar extending forward from the stem of a sailing ship.

buoy—A floating aid to navigation used to mark channels, obstructions, and serve as information guides. Buoys, usually metal, are moored with a chain and a sinker. Unlighted buoys are nuns and cans. Lighted buoys have cages and are lighted and with or without sound signals.



buoy tender— A Lighthouse Service or Coast Guard vessel used to tend buoys, work shore aids, and occasionally perform other duties like delivering keepers, families and supplies in time past and today performing search and rescue and other duties as directed (i.e. establish NOAA buoys).

caisson—A water tight metal cylinder placed in a shallow water area and used as the base of an off-shore lighthouse structure.

chandelier—In lighthouses, a circular fixture suspended from the ceiling that holds a number of lamps or light bulbs.

channel aids to navigation—Pilings or buoys used to indicate the edges of a channel.

characteristic of a light—In a lighted aid to navigation the characteristic identifies a particular aid from those in proximity. Fixed or flashing lights as well as colors help the mariner distinguish aids that are in proximity to each other. Characteristics include occulting, group flash, equal interval, etc.

cistern—A receptacle or tank for collecting and holding water or other liquid.

Civil Service—All branches of public service that are not legislative, judicial, military, or naval. Collectively, the persons employed by these branches. Often called “civilians”.

collector of customs—The person employed to collect the duties or taxes imposed on imported and, less commonly, exported goods. Some collectors also served as superintendent of lighthouses. With the passage of the Homeland Security Act in 2002, the U.S. Customs Service passed from under jurisdiction of the Treasury Department to the Department of Homeland Security.

colonial militia—In the American colonies under British rule, a citizen army, as distinct from a body of professional soldiers.

coordinates—The latitude and longitude of a lighthouse.

davits—Any of various types of small cranes used to hoist boats and cargo.

daymark—Generally an unlighted aid to navigation used to identify a channel edge or obstruction by use of shapes and colors. Many lighthouse towers also have a pattern, daymark, to assist the mariner to identify it from its surroundings or from a like shaped tower in proximity.

direction light—A light showing over a very narrow sector, forming a single leading light. This sector may be flanked by sectors of greatly reduced intensity, or by sectors of different colors or character.

dressed stone—Stone that has been shaped with tools so it can be fitted tightly together. A material frequently used to build lighthouses.

duck decoys—Life-size reproductions of ducks carved from wood, and floated by hunters to attract wild ducks. Occasionally carved by light keepers.

duration—Length of time in seconds that light may be shown or not shown (eclipsed).

elevation—The distance from mean high water to the focal plane of the lens.

fixed light—In a lighthouse, a light that is continuous and unchanging.

flashing mechanism—A clockwork or other means whereby a light is made to flash at set intervals.

flashing light—An aid to navigation that flashes at set intervals, such as every three seconds, five seconds, eight seconds, etc.

flat-wick lamps—Lamps lit by burning a flat strand of braided fibers that draws up fuel to the flame. Some lamps have round wicks.

focal plane—The center of the optic or lens. (Not the height above the ocean).

fog bell—A bell used to warn ships of navigation hazards hidden by fog.



fog siren—A device in which compressed air or steam is driven against a rotating perforated disk to create a loud, penetrating whistle.

frigate—A high-speed, medium-sized sailing war vessel of the seventeenth, eighteenth, and nineteenth centuries.

Fresnel lens—Invented in 1822 by a Frenchman named Augustin Fresnel, the glass lens surrounded the lamp in a lighthouse, consisting of dioptric and catadioptric prisms which either direct a central source of light into a pencil beam or a horizontal beam. At one time a 1st order (6 ft in dia.) was the largest of this style lens. Today it's the 3rd largest. Originally there were three orders - 1st, 2nd and 3rd. Eventually 4th thru 6th were added. In the late 19th century a 3 1/2 was added to provide a lens more powerful than a 4th order and less expensive than a 3rd order. In the 1890s Chance Bros. of England developed the Meso-radial and Hyper-Radial lenses. The latter is 8 1/2 ft. in dia. Larger lenses are used for seacoast areas, mid orders are employed for coastal trade and entrance lights and small orders used in bays, estuaries, rivers and harbors. (Photo of lens orders by Adam Beck, CADENAS PARTsolutions)



1st Order

2nd Order

3rd Order

4th Order

5th Order

6th Order

garrison—A military post or the troops stationed at such a post.

geographical range—The maximum distance at which light from a light can theoretically reach an observer as limited only by the curvature of the earth and the refraction of the atmosphere, and by the elevation of the light and the height of eye of the observer.

gunwales—The upper edge of a ship's side.

illuminant—The fuel that is used in the lighthouse lamp.

illuminating apparatus—Whatever was used in a lighthouse to produce the light in the lantern.

incandescent oil vapor lamp (IOV)—Consists of two tanks (gas and air) that is combined or mixed to produce a flame.

Instructions to Light Keepers—Instructions issued by whoever was in charge of the lighthouse service, telling the keepers how to perform their duties.

integral—A style of lighthouse architecture where the lantern on the tower is part of, or attached, to the keeper's dwelling

keeper—An individual appointed to take charge of a light station. (See **lighthouse keeper**) (Photo courtesy of Florida State Archives)



keeper's dwelling/quarters—On a light station, the building or buildings in which the keeper or keepers lived.

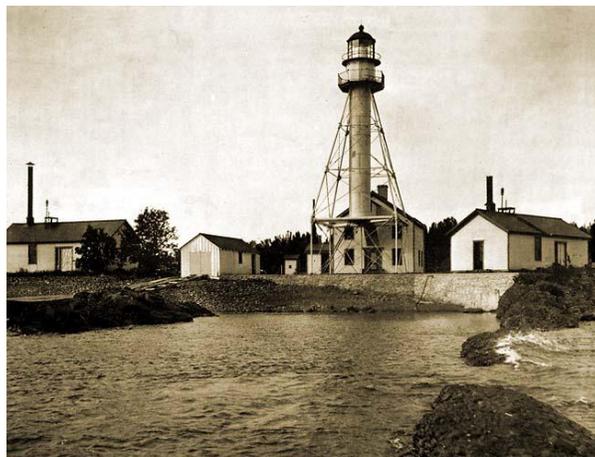
kerosene/mineral oil—A thin oil distilled from petroleum or shale oil, used as a fuel.

latitude—An angular distance of any point on the surface of the earth north or south of the equator. The equator is latitude 0°, and the North Pole and South Pole are latitudes 90°N and 90°S, respectively. The length of one degree of latitude averages about 69 mi (110 km); it increases slightly from the equator to the poles as a result of the earth's polar flattening. Latitude is commonly determined by means of a sextant or other instrument that measures the angle between the horizon and the sun or another celestial body, such as the North Star. The latitude is then found by means of tables that give the position of the sun and other bodies for that date and hour.

light character—Part of the characteristic that defines the pattern of light only.

Light List—The information extracted from each published light list, on a per light basis, are the lighthouse name, coordinates of the lighthouse, characteristic, structure description, optic, fog signal, radiobeacon, and reference number. Also extracted are all the radiobeacons and special radio direction finders, whether or not they are associated with a light. The light list may have typos that could have later been corrected in notices to mariners. Most errors were left in anyway; that is, don't assume that what appears to be incorrect on the website was incorrectly presented on the website!

light station—A series of structures making up a light station. They could consist of a keeper's dwelling or dwellings, sound system building, coal house, boat house, oil house, privy, dock, radio beacon antenna and the tower. The correct term is light station, not lighthouse. (Pictured is Manitou Island Light Station, Michigan, from the U.S. Coast Guard Historian's files.)



lampist—In the lighthouse service, an individual specially trained to service and repair the optics or lighting mechanisms.

landmark—Any prominent and identifying feature of a landscape that can serve as a daymark.

lantern—In a lighthouse, the glass-paned cage at the top of the tower within which the optic is protected from the weather. Shown is the lantern of Point Cabrillo Lighthouse, California.



lanthorn—An earlier spelling of “lantern.”

lard oil—An oil that comes from the white solid or semisolid fat of a hog.

lens-lantern—A small lens enclosing an oil lamp. This type of lamp was often hung from a pole or tripod in small waterways and rivers. It had a fuel reservoir that was filled once a week by a lamplighter. Pictured is a tripod river beacon.



“Lighthouse Keepers and Assistants”—Hand-written registers of the appointments of light keepers and assistant keepers in the nineteenth century. Now located in the National Archives and available on microfilm.

lighthouse tender—A vessel used to carry supplies and personnel to lighthouses and to tend other aids to navigation, such as buoys and lightships.

lighthouse service—A generic term that has been used to include all the people involved in operating lighthouses.

lighthouse keeper—The resident individual appointed to maintain the light at a light station.

lighthouse engineer—Under the U.S. Light-House Board, an Army officer assigned to a Light-House District to oversee construction and maintenance of light stations within that district.

lighthouse inspector—Under the U.S. Light-House Board, a Navy officer assigned to a Light-House District to oversee hiring and daily administration at the field level.

lightship—In dangerous locations at sea where a lighthouse could not be built, a ship that was anchored in one spot called a lightship station, displaying a light from masts on the deck. Umatilla Lightship is pictured. It served off Washington State.



longitude—An angular distance on the earth's surface measured along any latitude line such as the equator east or west of the prime meridian. A meridian of longitude is an imaginary line on the earth's surface from pole to pole; two opposite meridians form a great circle dividing the earth into two hemispheres. By international agreement, the meridian passing through the original site of the Royal Greenwich

Observatory at Greenwich, England, is designated the prime meridian, and all points along it are at 0° longitude. All other points on the earth have longitudes ranging from 0° to 180°E or from 0° to 180°W. The international date line lies along the 180° meridian. Meridians of longitude and parallels of latitude together form a grid by which any position on the earth's surface can be specified.

mariner—A sailor or a person who operates a vessel.

National Archives—The federal agency in which government papers are housed after they are no longer being actively used. The main facility is in Washington, -DC: www.archives.gov; Archives II is in College Park, MD.

nominal range—Luminous range of a light in nautical miles when the meteorological visibility is 10 nautical miles.

occulting light—A light in which the total duration of light in a period is longer than the total duration of darkness, and the intervals of darkness (eclipses) are usually of equal duration.

oil house—The small building that was added to light stations after the adoption of kerosene as a fuel to keep the very flammable fuel away from other buildings. Pictured is the oil house at Point Pinos Lighthouse, California.



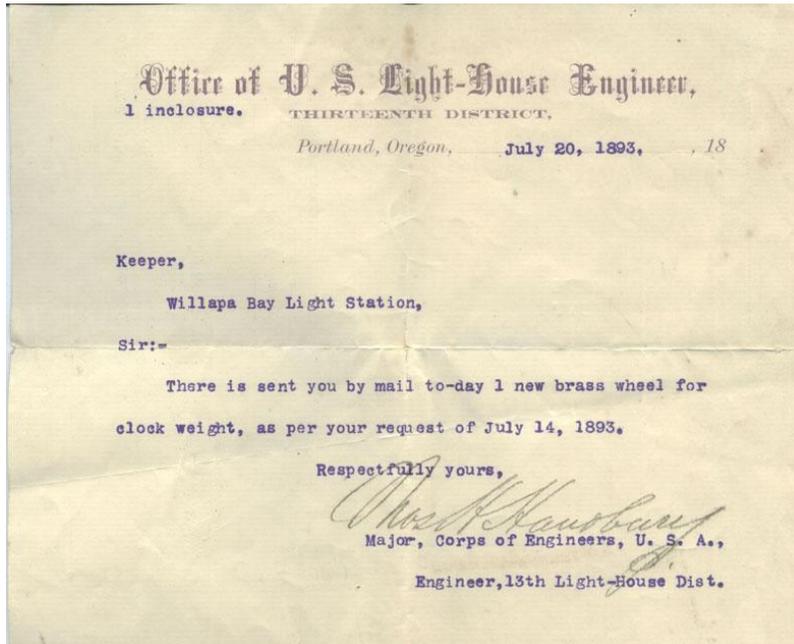
oil butt—A large cask or canister in which oil was kept.

period—All lights other than fixed lights exhibit a sequence of intervals of light and darkness, the whole sequence being repeated identically at regularly intervals. A period is the time taken to exhibit one complete sequence.

pilot—Someone licensed to guide ships in and out of ports. Not a member of the ship's crew.

prefabricated cast iron—Liquid iron formed into a particular shape by pouring it into a mold.

primary sources—Documents that are written by the individuals actually involved in any historic act. Below is a picture of an original document from a lighthouse district engineer to a lighthouse keeper. (Photo from the National Archives)



public works—Construction projects, such as highways or dams, paid for by public funds and constructed by the government for the benefit or use of the general public.

published Light List—A publication that contains a list of lights, sound signals, buoys, daybeacons, and other aids to navigation. They typically include a unique reference number, aid name (i.e., lighthouse name, etc.), coordinates, characteristic and intensity, elevation of the light, nominal range for the light, a description of the structure and possible height, and remarks such as sectors, arcs of visibility, etc. for each aid to navigation. The "Admiralty Charts and Navigations - Vol. A-L" and "United States Coast Guard Light List - Vol. I-VII" are current light list publications.

quick light—A light which flashes at a rate of not less than 50 flashes per minute but less than 80 flashes per minute.

radio beacon—A fixed radio transmitter that broadcasts distinctive signals as a navigational aid.

radio telephone—A telephone in which audible communication is established by radio.

radio watch—Constant communication with the nearest Coast Guard Station by means of a radio telephone.

range lights—Two or more lights associated so as to form a leading line to be followed. Also known as leading lights. Pictured are the old Lovells Island Range Lights on the route into Boston Harbor. (Photo from the the U.S. Coast Guard)



reference number—A unique identifier that is used to represent an aid to navigation in a published light list. NOTE: A published light list might actually reference a light in multiple sections of the light list and, thus, have multiple reference numbers for the same light.

reflectors—In nineteenth-century lighthouses a concave or parabolic dish, usually coated with silver and placed behind an Argand or Lewis lamp to increase the brightness of the light.

revenue cutter—A sailing vessel or steamer used in the nineteenth century to prevent commercial vessels from circumventing payment of customs dues. In 1915 the U.S. Revenue Cutter Service merged with the U.S. Life-Saving Service to form the U.S. Coast Guard.

rheumatism—A joint disease today known as arthritis. Keepers often suffered from arthritis because they lived in a maritime climate; there were very few medicines available for rheumatism in the 19th century.

rod—A linear measure equal to 5.5 yards, 16.03 feet, or 5.03 meters.

rubblestone—Irregular fragments or pieces of unshaped rock used in masonry construction.

schooner—A sailing ship with two or more masts, the mainmast being behind and taller than the foremast.

screwpile—A style of lighthouse architecture where metal pilings are screwed into a sandy or muddy bottom, with the keeper's dwelling and tower resting above on the pilings. Pictured is Drum Point Lighthouse in the Chesapeake Bay. (Photo from the U.S. Coast Guard Historian's files.)



Secretary of the Treasury—The official in a president's cabinet who is in charge of the Treasury Department. The lighthouse service was under the Treasury Secretary from 1789 to 1901.

seeding oyster beds—Planting oyster spat in the water where they will grow until they reach maturity and can be harvested.

sector light—A light presenting different appearances, either of color or character, over various parts of the horizon of interest to maritime navigation.

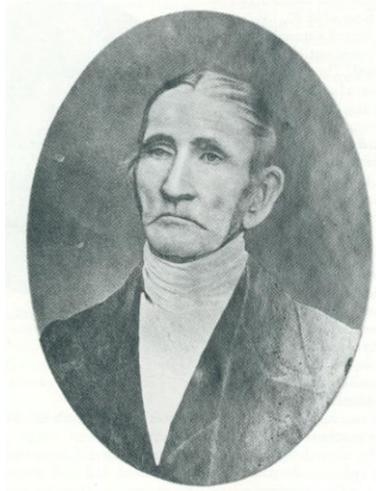
skeleton or skeletal tower—A tower constructed of metal struts and cross braces to hold a lantern on its top.

skiff—A flat-bottomed open boat of shallow draft, having a pointed bow and a square stern.

Sound system— Various devices employed to warn the mariner of land or an obstruction during inclement weather. Over the years they have consisted of bells, sirens, whistles, trumpets, and electronic devices.

sperm oil—Combustible oil made from the fat of the sperm whale; used as the illuminant in lighthouses at the beginning of the 19th century. In the 1850s the price of sperm oil quadrupled, prompting a search for an alternate fuel. Experiments proved that lard oil worked well when burned at high temperatures. The larger lamps were gradually switched from sperm oil to lard oil.

Stephen Pleasonton—The Fifth Auditor of the Treasury Department who was placed in charge of the Lighthouse Establishment from 1820 to 1852. His portrait is in the collection of the U.S. Lighthouse Society.



stick style—A style of lighthouse architecture popular in the late-19th-century, named after its use of linear "stickwork" (overlaid board strips) on the outside walls to mimic an exposed half-timbered frame.

superintendent of lighthouses—A title given to collectors of the customs after they were charged with the supervision of the lighthouses in their districts. Superintendents continued to oversee accounts and some personnel matters after the transition to the U.S. Light-House Board.

tall tower—A style of lighthouse architecture where the light needs to be elevated high enough to be seen from some distance; the keeper's dwelling is a separate building.

tide—The periodic variation in the surface level of the oceans caused by the gravitational attraction of the sun and moon.

trimming the wick—The burned part of a lamp wick had to be trimmed away periodically to ensure maximum brightness of the flame.

twin lights—Early Light Stations that displayed two or more lights to distinguish them from stations nearby. Not to be confused with range lights that consisted of two lights that could be lined up to identify a channel or harbor entrance. Below is an old postcard showing the twin lighthouses at Chatham, Massachusetts.



United States Light-House Board—A board appointed in 1852 to take responsibility for upgrading and maintaining the nation's aids to navigation.

vault—A storage container for oil.

veteran—One who has been a member of the armed forces. Veterans were often appointed to keeper positions.

watch room—A space in or below the lantern of a tall lighthouse where the keeper could watch and prepare the lamps during the night.

whitewash—A mixture of lime and water used to whiten walls.

Compiled by Mary Louise Clifford, U.S. Lighthouse Society Volunteer
These definitions do not include those on the USLHS web site <uslhs.org> under
the heading GLOSSARIES.

Sources:

Gary Riemenschneider, "Terms and Abbreviations" found at
<http://www.uslhs.org/light_lists/glossary.php#terms_and_abbrev>

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Communications, 2005)

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