

CHAPTER 28

Glossary of Aids To Navigation Terms

This chapter consists of definitions of words and phrases commonly used in connection with Aids to Navigation. In addition, a few seamanship terms peculiar to work on buoy tenders as used in Chapter 27 of this Manual have been included.

A

- A. G. A.:** American Gas Accumulator Co.; a manufacturer of acetylene lighting apparatus.
- ABSORPTION FACTOR:** The ratio of the light flux absorbed by a body and the light flux incident upon it.
- ACCUMULATOR:** A synonym for **ACETYLENE CYLINDER**.
- ACETYLENE:** A gas used to operate lighted aids to navigation apparatus.
- ACETYLENE BUOY:** A lighted buoy operated by acetylene gas.
- ACETYLENE CONNECTIONS:** Piping and tubing fittings used in an acetylene light system.
- ACETYLENE CYLINDER:** A portable bottle-shaped steel cylinder used to store acetylene gas under pressure.
- ACETYLENE CYLINDER CAP:** A protective fitting which screws on the end of an acetylene cylinder to cover the valve.
- ACETYLENE TANK:** A synonym for **ACETYLENE CYLINDER**.
- ACETYLENE TUBING (PIPING):** Copper-covered seamless steel tubing used to conduct acetylene gas under pressure. *May also be stainless steel tubing.*
- ADAPTOR, PRESSURE GAGE:** A reducing bushing necessary for use in connection with testing acetylene pressure.
- ADRIFT:** A floating aid broken loose from its mooring and drifting off station.
- ADJUSTED CANDLE POWER:** A candlepower value which has been rounded off in accordance with a standard table comprised of those candlepower values approved for publication in Light Lists and Notices to Mariners.
- AIDS TO NAVIGATION:** Any device external to a vessel or aircraft intended to assist a navigator to determine his position or safe course, or to warn him of dangers or obstructions to navigation.
- AIR CELL:** A type of primary cell.
- ALADDIN LAMP:** A kerosene-burning, chimney-type, incandescent mantle lamp used at many light stations as an emergency standby lamp.
- ALARM CIRCUIT:** An electrical circuit used to activate an alarm device, such as a bell or light, to indicate failure or irregular operation of an aid to navigation device.
- ALLARD'S LAW:** A mathematical formula defining the relationship between intensity of a light, atmospheric conditions, and the amount of light received at any given distance.
- ALTERNATING FLASHING LIGHT:** A flashing light which shows color variations.
- ALTERNATING FIXED AND FLASHING LIGHT:** A fixed light varied at intervals by a flash of greater brilliance, either or both of which may vary in color.
- ALTERNATING GROUP FLASHING LIGHT:** A group flashing light with color variations.
- ALTERNATING LIGHT:** A light which shows color variations.
- ALTERNATING OCCULTING LIGHT:** An occulting light with color variations.
- ANCHORAGE BUOY:** A buoy which marks a limit of an anchorage area; not to be confused with a mooring buoy.
- ANGLE BOOK:** A notebook kept on board many of the older tenders which recorded data on the location of buoys, angles, ranges, other local information, etc.
- ANRAC:** An electronic remote control device for aids to navigation.
- APPENDAGES:** See **BUOY APPENDAGES**.
- APPARENT INTENSITY:** A phrase applying to flashing lights. The apparent intensity of such a light is equal to the intensity of a fixed light which has the same luminous range.
- ARC OF VISIBILITY:** That portion of the horizon over which a lighted aid to navigation is visible from seaward.
- ARTIFICIAL RANGE:** A range formed by two objects such as buildings, towers, etc.

ASSEMBLED LENS: A lens fashioned of individually cut, ground and polished prisms assembled into a single optical apparatus.

ASTRAGAL: The partition moulding in a lantern or assembled lens which serves as the frame for holding the glass in place. The astragals of a lantern can also serve to support the top or roof of the lantern, in which case they are sometimes referred to as stanchions.

ASTRONOMICAL TIME CLOCK: A device operating an electric switch used to turn a light off at sunrise and on at sunset. It automatically compensates for change in seasons.

ASYMMETRICAL FAN BEAM: A beam of light whose intensity varies equally about a central axis.

ATMOSPHERE: A standard of measure of acetylene gas pressure (14.7 lb./sq. in.).

ATTENDED STATION: A station where personnel are assigned for the purpose of performing an assigned operational mission.

B

BAIL: A metal lifting eye secured to an object.

BALANCING PENDANT: A chain bridle or length of chain used in lifting 9 x 32 lighted buoys.

BALLAST BALL: An iron ball of various sizes used as a counterweight on standard-type unlighted buoys and some bell buoys. It is not necessary if the weight of mooring chain is sufficient to maintain the buoy upright.

BATTERY HOUSE: An inclosure on or adjacent to a minor light structure for housing batteries.

BATTERY RACK: A metal container for holding several low discharge-type cells and inserted in the pocket of a lighted buoy; a metal or wood framework which supports the power batteries at a shore station.

BAYONET BASE: A type of base on an electric lamp characterized by two short prongs which project sideways from the base and slide into matching slots in the lamp socket.

BEACON: An obsolete term, formerly referring to a shore aid to navigation. The term is still used by maritime interests outside the Coast Guard.

BEARING: The direction of a line of sight between two objects on the surface of the earth.

BELL BUOY: A buoy equipped with a bell as a fog signal.

BELL METAL: An alloy used for the manufacture of bells.

BELL STAND: A conical stanchion welded to the head of the buoy body to support the bell (used on recently constructed buoys).

BELL STRIKER: A mechanism used for sounding a bell on a regular characteristic.

BELL TOWER: A skeleton framework mounted on a lighted buoy within the light tower for supporting the bell. (Not used on new buoys.)

BENDING HICKEY: A tool used for bending acetylene tubing.

BIFURCATION: A division of a channel into two branches; a fork.

BIPOST BASE: A type of base on an electric lamp characterized by two terminal posts protruding downward.

BIVALVE LENS: An assembled rotating lens of two panels, each of which intercepts light from the source over a horizontal angle of approximately 180°.

BLIND PLUG: A plug inserted in an acetylene connection to stop the flow of gas.

BLOCK AND BLOCK: When a tackle has reached the limit of its hoist and the upper and lower blocks meet each other. The tackle must then be lowered or overhauled.

BLONDEL-REY EFFECT: The effect that the flashing of a light has on reducing its apparent intensity as compared to the intensity of the same light when operated fixed. Blondel and Rey were the physicists who first mathematically analyzed this phenomenon.

BODY LINE: A 5- or 6-inch manila line used in setting large lighted buoys to steady and prevent surge of the buoy. The term is mainly used on West Coast tenders.

BOOM: A long spar (steel) projecting from a mast or base of an A-frame, used to support lifting tackles; a derrick arm.

BRIDLE: Two short lengths of chain connected by an iron ring; used in connecting mooring chain to lighted and some unlighted buoys or for lifting heavy weights.

BRIGHTNESS: The luminous intensity of a surface in a given direction per unit of projected area in the same direction.

BULB: The glass portion of an electric lamp.

BULL LINE: A synonym for **CROSS-DECK LINE**; a heavy line used for steadying a heavy weight while being hoisted.

BULL'S-EYE LENS: A lens containing dioptric elements only and designed to project a pencil beam.

BUOY: A floating object moored to the bottom to indicate a position on the water or to moor a vessel.

BUOY APPENDAGES: Mooring equipment for a buoy; chain, sinker, bridle, shackles, ballast ball, etc.

BUOY BOAT: A small boat, usually from 35 to 65 feet long, fitted with hoisting equipment, whose function is to service unwatched aids to navigation, usually within a relatively limited area.

BUOY BODY: The enclosed portion of a buoy, i. e., the portion that provides the flotation.

BUOY CAGE: The skeleton framework (ring) surrounding a buoy lantern for its protection.

BUOY CHAIN (OPEN LINK): A series of elongated metal rings joined to form a means of mooring a buoy. May be steel or wrought iron.

BUOY CHOCK: A wooden block, square cross sectioned or shaped to fit the contour of the buoy body, used for steadying and securing buoys on deck and ashore.

BUOY CRADLE: A synonym for **BUOY CHOCK**.

BUOY HEAD: The dished-shaped piece of steel which forms the upper or lower portion of the buoy body.

BUOY LANTERN: The metal and glass housing on a lighted buoy which contains the illuminating apparatus. The glass in an electric lantern is also the lens. Some consider the term lantern to include the entire illuminating apparatus used on a buoy.

BUOY, LIGHTED: See **LIGHTED BUOY**.

BUOY, MOORING: See **MOORING BUOY**.

BUOY MOORING LUG: The ring or inverted U-shaped fixture, welded or riveted to a buoy body, to which a mooring chain or bridle is attached.

BUOY POCKET: A cylindrical confined interior section of a buoy body containing a battery rack or acetylene cylinder. Pockets are fitted with watertight covers.

BUOY PORT: An open section of the bulwarks on each side of the working deck of a tender through which buoys, appendages, etc., are launched and recovered.

BUOY SLAB: A colloquial term for the area of a depot used for storage or repair of buoys.

BUOY STATION: The established location of a buoy.

BUOY TENDER: A vessel designed for, and engaged in, servicing aids to navigation, particularly buoys.

BUOY TOWER: The skeleton metal framework mounted on the buoy head to support the lantern.

BUOY TUBE: A long counterweighted metal cylinder attached to the lower buoy head.

BUOY VENT: A metal tubing open to the atmosphere which is connected to certain confined spaces (pockets) in the interior of a lighted buoy to prevent the building up of leaking gas pressure.

BUOY, UNLIGHTED: See **UNLIGHTED BUOY**.

BURNER: The part of an acetylene illuminating apparatus where the flame is produced.

BURNER HEAD: The fixture in conventional acetylen lighting apparatus which includes the burner(s), pilot(s), and the connections for the associated gas tubing.

C

CAGE: See **BUOY CAGE**.

CAGE LINE: A line rove through the cage of a buoy to steady it while alongside or being hoisted; often called a head line.

CAN BUOY: An unlighted buoy having a cylindrical portion showing above the water line.

CANDELABRA: A term which arbitrarily designates the size of the base of certain electric lamps.

CANDLE: A unit of luminous intensity.

CANDLEPOWER: The luminous intensity of a light expressed in candles.

CANDLEPOWER CURVE: A graph showing the candlepower of a beam plotted as ordinate against the angle to either side of the beam's center line as abscissa.

CANT: The turning or change in direction of a vessel in restricted waters.

CATADIOPTRIC PRISM: An optical element, forming a portion of an assembled fresnel lens, in which light rays are directed in their intended direction by the use of the principles of both internal reflection and refraction.

CATOPTRIC PRISM: An optical element forming a portion of an assembled fresnel lens, in which light rays are redirected back through the light source by means of two successive internal reflections within the element.

CAUTIONARY CHARACTERISTIC: A quick-flashing light, which because it is unique, can be recognized as imparting a special cautionary significance such as indicating a sharp turn in a channel.

CHAFE: That section of the mooring chain of a buoy constantly rubbing on the bottom as the buoy rises and falls in the seas.

CHAIN, BUOY: See **BUOY CHAIN**.

CHAIN HOOK: A handled metal hook about 32 inches long used to haul bights of chain about the deck.

CHAIN PLUG: A threaded metal plug used to secure the valve outlets of acetylene cylinders and other connections. It is secured by a short length of bead chain.

CHAIN SLING: A short variable length of high-tensile strength chain having an elongated pear-shaped link or hook in each end. It is used to hoist heavy weights on board tenders.

CHAIN STOPPER: A device for securing or stopping off mooring chain to the deck; may be a pelican hook, wire or manila strap, or a mechanical jaw device.

CHANGED: Authorized alteration made without moving an aid. Published Light List description to be changed accordingly.

- CHANGE-OVER RELAY:** An electrical device for automatically restoring operation of an aid to navigation in the event of failure.
- CHARACTERISTIC:** The color and shape of a daymark or buoy or the color and period of a light used for identifying the aid; the identifying signal transmitted by a radiobeacon.
- CHARACTERISTIC, FINAL:** See **FINAL CHARACTERISTIC**.
- CHARACTERISTIC, PRELIMINARY:** See **PRELIMINARY CHARACTERISTIC**.
- CHARGING A BUOY:** Installing and connecting batteries or acetylene cylinders in a lighted aid to navigation.
- CHARIOT:** A revolving table which carries a rotating type of assembled fresnel lens.
- CHECK ANGLES:** Horizontal sextant angles measured at a buoy station other than the set used to locate the buoy. These serve to check the position.
- CHOCKS:** See **BUOY CHOCKS**.
- CIRCULAR MIRROR:** A mirror whose reflecting surface is a portion of a sphere.
- CLOCK TRAIN:** A mechanism which drives and controls the speed of rotation of a weight-driven revolving lens.
- CLOSED:** Discontinuance of an aid on a fixed structure for the winter season.
- CLOSING THE HORIZON:** When angles are measured all around 360° at a buoy station, the horizon is said to be closed.
- CLUSTER BURNER:** A group of several acetylene burners mounted as a unit to furnish a more powerful light.
- COLOR SCREEN (SHADE):** A colored glass surrounding the light source in a lantern causing emission of a colored light.
- COLORED LIGHT:** An aid to navigation exhibiting a light of a color other than white, namely red or green.
- COLORED SECTOR:** The arc of the horizon from which a colored light may be seen.
- COMMISSIONED:** An aid previously reported "CLOSED" or "WITHDRAWN" has been placed in operation.
- COMPLEX FLASHER:** An acetylene flasher showing a short-long characteristic.
- COMPOUND FLASHER:** An acetylene flasher showing an interrupted quick flashing characteristic.
- CONVENTIONAL CANDLEPOWER:** A value accepted as the intensity of a piece of illuminating apparatus, which although it may be knowingly in error, is accepted for administrative reasons.
- CONVERGED BEAM:** A form of fan beam in which the angular spread is decreased by concentrating the light rays laterally.
- COPPER ACETYLIDE:** A chemical salt formed in the presence of copper and acetylene. Tubing coated with copper acetylide will give off sparks even when struck with an ordinarily non-sparking material such as wood.
- COUNTERWEIGHT:** A heavy weight, usually metal, fastened to a lower portion of a buoy to increase its stability.
- CRADLE:** See **BUOY CRADLE**.
- CRESCENT BURNER:** A small acetylene burner which is crescent-shaped in appearance.
- CROSBY CHARACTERISTIC REGULATOR:** A pneumatic mechanical device for operating a fog signal at an attended station.
- CROSS-DECK (HOOK) LINE:** A heavy (5-inch or 6-inch) manila line having a hook or eye in one end, and led from the windless or capstan through snatch blocks on deck to a large buoy or other heavy weight for steadying purposes.
- CUT GLASS LENS:** A lens whose optical elements are fashioned from cut, ground and polished segments.
- CYLINDER:** See **ACETYLENE CYLINDER**. Applies also to the storage of any compressed gas.

D

- DAISY CHAIN LAMPCHANGER:** An obsolete-type lampchanger used in electric lanterns in which the standby lamps are attached to a belt.
- DARK PERIOD:** See **ECLIPSE**.
- DAYBEACON:** An unlighted structure which serves as a daytime aid to navigation by virtue of its distinctive appearance which makes it recognizable and identifiable.
- DAYMARK:** The daytime identifying characteristics of an aid to navigation. The daymark qualities of an aid are unique and distinctive to facilitate its recognition. Also a conspicuous target added to a daybeacon or light. The Second Coast Guard District refers to daybeacons as daymarks.
- "DEADMAN":** A device buried in the ground used to anchor a guy or tackle.
- DEFLECTING ROUNDEL:** A spread lens which has the effect of increasing the divergence.
- DEPOT:** A shore unit established to repair and store aids to navigation equipment and to perform related functions.
- DERRICK (CARGO BOOM):** See **BOOM**.
- DIAPHONE:** A type of fog signal apparatus which generates sound by the vibration of a slotted piston in a cylinder.
- DIAPHRAGM HORN:** A type of fog signal apparatus which generates sound by the vibrations of a circular diaphragm rigidly fastened at its periphery.
- DIOPTRIC APPARATUS:** A lens formed entirely of dioptic prisms or the equivalent.

DIOPTRIC PRISM: An optical element of glass which directs light rays in their intended direction by utilizing the principle of refraction only.

DIRECTIONAL DRUM LENS: A drum-type lens (fresnel) which emits a fan beam around the entire horizon, one portion of the beam covering only a few degrees and being of considerably higher intensity than the remainder of the beam.

DISCONTINUE: Authorized removal from operation. Aid to be deleted from the published Light List.

DISESTABLISHMENT: The act of permanently removing from service a previously authorized, permanent aid to navigation.

DISTANCE FINDING STATION: An attended light station emitting simultaneous radiobeacon and sound signals for distance finding purposes.

DIVERGED BEAM: A form of fan beam in which the divergence of a pencil beam is increased in one plane, so that the angular spread of the remaining fan beam is greater than that of the original pencil beam.

DIVERGENCE: The angular spread of a beam.

DOGS: A colloquial term applied to buoy pocket cover hold-down swing bolts.

DOLPHIN: See **PILE DOLPHIN**.

DOUBLE DRUM BEACON: A piece of illuminating apparatus consisting essentially of two double-ended "beacons" mounted one over the other.

DOUBLE-ENDED BEACON: A piece of rotating illuminating apparatus which emits two pencil beams, one from each end of the equipment, 180° apart.

DOUBLE TOPPING LIFT: A double installation of a multiple purchase supporting the boom on the class B and C 180-foot tender. This boom needs no steadying guys.

DOUBLET LENS: A converging lens installed in series with another, larger converging lens for the purpose of reducing the over-all size of the apparatus assembly.

DREDGE: To drag an anchor at short stay over the bottom as a steadying influence on the ship.

DRIVEN TO REFUSAL: When a pile has been driven to the point where it will penetrate no further and the top begins to "broom" out under the hammer blows.

DRUM LENS: A cylindrically-shaped lens whose vertical cross-section taken at any portion of the lens is the basic dioptric fresnel shape. It emits a uniform fan beam.

DUAL PURPOSE LANTERN: A lantern which emits beams of light vertically as well as horizontally.

DUAL PURPOSE LENS: A lens which emits a uniform fan beam of comparatively high intensity around the horizon, and of lesser, but appreciable intensity through all angles to the zenith.

DUMPING SLING: A rope or wire sling used mainly on West Coast tenders for dumping buoy sinkers over the side. It obviates the need for hanging the sinker on a stopper for tripping.

DUNNAGE: Lumber used to protect cargo in the hold of a ship; planks and blocking used in securing loads of buoys and appendages on board a tender.

DUPLEX LANTERN: A lantern containing two separate lens systems.

E

ECHOBOARD: Large flat wooden surfaces erected in strategic locations to reflect the sound of a vessel's horn or whistle as an aid in locating the ship's position.

ECLIPSE: A portion of the characteristic of a flashing light during which the light is not exhibited.

ECLIPSING LIGHT: A light which flashes on and off, the length of the lighted portion of the cycle being equal to or greater than the length of the dark or eclipsed portion.

EIGHT-FOOT BUOY: A buoy 8 feet in diameter such as the 8 x 26 or 8 x 20 class of lighted buoys (as described in Ch. 27).

ELECTRIC AIR OSCILLATOR: A type of fog signal.

ELLIPTICAL MIRROR: A mirror whose reflecting surface is a portion of the surface of an ellipsoid.

ENTRANCE MARKER: An aid to navigation whose primary function is to mark the entrance to a specific harbor, river, channel, etc.

ESTABLISH: To place an aid in authorized operation. Aid to be added to the Light List.

EXACT CANDLEPOWER: The intensity of a beam from a piece of illuminating apparatus expressed in exact figures according to available data.

EXTINGUISHED: Lighted aid not burning.

F

FAIRWAY: A preferred route through navigable waters not restricted in nature, i. e., a channel.

FAIRWAY BUOY: A buoy painted black and white vertical stripes which may be safely passed on either side.

FAKE (FLAKE): A term commonly and incorrectly used on tenders to mean the lying out of bights of chain on deck for running freely over the side. The correct name for this practice is "RANGING."

FALSE LIGHT: A light which is unavoidably exhibited by an aid to navigation and which is not intended to be a part of the proper characteristic of the light. Reflections from storm panes come under this category.

FAN BEAM: A beam in which the light is concentrated in and about a single plane.

- FILLING THE LENS:** An expression meaning that the light source is large enough compared to the size of the optic to insure every portion of the face of the optic emitting its share of the projected beam.
- FIRST CLASS BUOY (SPAR, STANDARD, TALL, ETC.):** The largest of a series of similarly constructed, or a type of, unlighted buoys.
- FISH:** To hook something into, such as hooking a wire pendant into the lifting lug of a buoy.
- FINAL CHARACTERISTIC:** The correct light sequence of flashes and eclipses obtained after a series of adjustments of an acetylene flasher.
- FIX:** The establishment of a position on the water by means of angles, bearings, etc.
- FIXED:** A term used in describing a light emitting a steady beam.
- FIXED AND FLASHING LIGHT:** A fixed light whose beam is varied at regular intervals by a flash of greater intensity.
- FIXED LENS:** A lens which emits a fan beam.
- FIXED LIGHT:** A steady light which when viewed from any point on the horizon remains unchanged in intensity.
- FIXED STRUCTURE:** Any aids to navigation structure other than floating.
- FLASH PANEL:** A portion of an assembled fresnel lens which projects a pencil beam, and which is usually a part of a rotating apparatus projecting two or more beams.
- FLASHER, ELECTRIC:** An electrically powered device which produces light flashes of prescribed characteristic in an electric lantern.
- FLASHER-REGULATOR, ACETYLENE:** A gas-operated device used to produce light flashes of prescribed characteristic in an acetylene lantern.
- FLASHING LIGHT:** A light showing a single flash at regular intervals not exceeding 30 flashes per minute, the duration of the flash always being less than the duration of the eclipse or darkness between flashes.
- FLEET:** The act of hoisting mooring chain hand over hand with successive alternate lifting tackles.
- FLOATING AID:** A buoy, secured in its charted position by a mooring.
- FOCAL DISTANCE:** The distance from the designed location of the light source to the optic measured in the focal plane.
- FOCAL PLANE:** The horizontal plane through the focus of an illuminating apparatus.
- FOCAL PLANE HEIGHT:** The vertical distance between the focal plane and a plane of reference, usually high water.
- FOCUS:** To adjust the light source in an optic in order to obtain maximum candlepower; the point where the light source should be located in order to get maximum candlepower.
- FOG SIGNAL:** A sound signal established as an aid to navigation for the purpose of guiding mariners in periods of reduced visibility.
- FOG SIGNAL APPARATUS:** The devices used to generate the sound signal.
- FOG SIGNAL STATION:** An attended station whose function is to operate a fog signal.
- FOOT CANDLE:** A unit of illumination equal to the illumination on a surface one square foot in area over which is uniformly distributed a flux of one lumen.
- FRESNEL LENS:** A glass lens of the stepped section type.

G

- GALLERY:** A balcony which extends around the upper portion of a light tower.
- GANTLINE (GIRTLINE):** A line rove through a single block aloft used for temporary hoisting such as an acetylene cylinder out of a buoy pocket, etc.
- GAS-FREE:** A lighted buoy whose interior does not contain an explosive concentration of acetylene gas.
- GAGE:** A device used for measuring pressure of acetylene gas at a buoy or minor light; determining the pressure of an acetylene light system for computing the service period.
- GEOGRAPHIC NUMBER:** The number assigned to an aid for identification purposes in accordance with the lateral system of numbering.
- GEOGRAPHIC RANGE:** The maximum distance an aid to navigation can be seen as limited by the curvature of the earth and the heights of the aid and the observer.
- GYPSY:** The drum on the end of a windlass shaft used for hauling rope.
- GLARE OF A LIGHT:** The description popularly given to a light of excessively high candlepower when viewed from a close distance.
- GONG BUOY:** A lighted or unlighted buoy mounting a set of gongs as a sound signal.
- GONG TOWER:** A skeleton steel framework supporting the gongs on a buoy.
- GRAPNEL:** A multipronged anchor of various weights used for dragging the bottom to recover sunken objects.
- GRIPE:** To hold firmly against something, such as a buoy hanging over the side being firmly held against the ship to prevent banging.
- GROUP FLASHING LIGHT:** A light showing groups of two or more flashes at regular intervals.
- GROUP OCCULTING LIGHT:** A light showing groups of two or more eclipses at regular intervals; the eclipses being of shorter duration than the flashes between the groups.
- GUY (VANG):** A manila tackle leading from each side near the end of the boom for steadying purposes. All booms except the double topping lift-type must have guys.

H

HAND LANTERN: A portable type of illuminating apparatus occasionally used as a temporary lighted aid to navigation.

HAND OVER HAND: Hoisting a mooring chain by means of successive alternate lifts by two tackles.

HANDSOMELY: To heave or pay out a line a little at a time; also a term used in steering a vessel to mean a little at a time or slowly.

HAND-BILLY TACKLE: A light watch tackle easily and quickly rigged for temporary hoisting and heaving.

HEAD LINE: A line rove to the head of a buoy for steadying purposes. See **CAGE LINE**.

HIGH PRESSURE TUBING: Stainless or copper-covered steel tubing used in acetylene installations.

HOGGING CHAIN: A shot of buoy mooring chain dipped under the tender and secured on deck at either side. Used for transferring a mooring from one side of the ship to the other when relieving buoys on West Coast bars.

HOOK LINE: A manila rope having a strong hook spliced in one end. Used for steadying and moving weights on deck.

I

ILLUMINANT: The source of energy for a lighted aid.

ILLUMINATING APPARATUS: A piece of equipment used to generate the beam which is exhibited by a lighted aid to navigation.

ILLUMINATION: The density of light energy falling on a surface. It is equal to the quotient of the flux by the area of the surface.

INCANDESCENCE: The property of a material by which it emits light energy when heated to high temperatures.

INCANDESCENT LAMP: A lamp giving forth light energy by virtue of a heated and glowing filament.

INCANDESCENT OIL VAPOR LAMP: A piece of apparatus which generates light through the heating of a mantle to incandescence. The heating is caused by burning vaporized kerosene oil in the mantle. It is known as an I. O. V. light.

IN COMMISSION: An aid previously reported "CLOSED" or "WITHDRAWN" has been placed in operation.

INDEX OF REFRACTION: Ratio of the sine of the angle of incidence to the sine of the angle of refraction.

INOPERATIVE: Out of service due to adverse conditions; particularly applicable to fog signals and radiobeacons.

IN SERVICE: An aid previously reported "INOPERATIVE" has been returned to service.

INTERIOR ELECTRIC CONNECTION: A tubing connecting the battery pocket and the buoy head of electric buoys through which wires are run.

INTERNATIONAL VISIBILITY CODE: An internationally agreed-upon scale which defines visibility in terms of an arbitrary series of numbers.

INTERRUPTED QUICK FLASHING LIGHT: A light which shows a group of quick flashes at the rate of 60 or more for about 4 seconds followed by an eclipse of about 4 seconds.

INVERSE SQUARE LAW: The law of physics which states that the illumination from a light source varies inversely as the square of the distance from the source.

K

KELVIN DEGREE: A unit of temperature on the **KELVIN** scale. This scale starts at minus 273° centigrade as its zero point. One degree on the **KELVIN** scale equals 1° on the centigrade scale.

KEY HAMMER: A light hammer having a straight peen on the head opposite the hammer face. It is used for flaring out or driving out split keys in buoy mooring shackles.

KILOMETER CANDLE: The illumination on the inside surface of a sphere 1 kilometer in radius, at the center of which is placed a 1 candlepower light source, the transmitting medium being one of perfect transparency.

KRANE KAR: A vehicular crane used ashore at depots to lift weights, including all but the larger lighted buoys.

L

LAMP: A device for generating light.

LAMP, ELECTRIC: A piece of electrical apparatus used to generate light by passage of electric current through a filament.

LAMP CHANGER: A spring-wound or electrically-operated device for substituting a standby electric lamp in the event of failure of the main lamp.

LAMP EFFICIENCY: An electric lamp's lumens per watt.

LAMP LOCKER: A storage place for spare light apparatus aboard a tender.

LANDFALL LIGHT: A major coastal light of high-candlepower, usually the first light to be sighted by a mariner approaching the coast.

LANDMARK: A charted prominent object ashore, other than an aid to navigation, easily identified, used in locating a position on the water.

LANTERN: The glassed-in inclosure on the top of an attended lighthouse which surrounds and protects the lens. Also the inclosure for the illuminating apparatus for buoys and minor lights. Sometimes the entire piece of illuminating apparatus is referred to as the lantern.

- LANTERN GALLERY:** The balcony or gallery on a lighthouse at the level of the lantern.
- LARIAT (LASSO):** A loop of manila or wire rope or chain, or both, used to throw over standard class unlighted buoys when picking them up out of the water.
- LASHING:** A binding of manila or wire rope or chain used to secure an object on board a vessel.
- LATERAL BUOY:** A buoy, either lighted or unlighted, intended to mark the side limits of a channel. These buoys are painted solid colors and are to be passed on one side only.
- LATERAL SENSITIVITY:** The property of a range which determines the rapidity with which the two lights of the range open up as a vessel moves laterally from the range line, thus indicating to the mariner that he is off the center line.
- LATERAL SYSTEM:** A system of aids to navigation in which buoys, daybeacons and minor lights adjacent to and marking navigable channels are assigned colors and numbers in geographical sequence and in accordance with their respective location in relation to the channel.
- LEADING LIGHT:** A light so located that vessels may steer directly for it until close aboard, when a new course is taken.
- LENS:** A device whose purpose is to project a beam of candlepower greater than the light source.
- LENS LANTERN:** A lantern in which a drum lens is the optic and in which no storm panes are used. The term is practically obsolete.
- LIGHT:** The signal emitted by a lighted aid to navigation; a piece of illuminating apparatus; a lighted aid to navigation on a fixed structure.
- LIGHT ATTENDANT:** A person whose duty is to service a comparatively small number of aids in a limited area.
- LIGHT ATTENDANT STATION:** A shore unit established for the purpose of servicing minor aids to navigation within an assigned area.
- LIGHT CENTER LENGTH:** The axial distance from the center of a lamp filament to that point on the lamp base which determines when the lamp is in position. Usually abbreviated LCL.
- LIGHT COLOR:** The color of the light beam emitted by a lighted aid to navigation. Red, green, and white are the only colors presently in use.
- LIGHT EQUIPMENT:** Illuminating apparatus.
- LIGHT HOUSE:** See **LIGHT STATION**.
- LIGHT LIST:** An official publication describing all aids to navigation maintained by or under the authority of the United States.
- LIGHT LIST NUMBER:** A number assigned each aid to navigation (except unlighted buoys) published in the Light List for identification purposes.
- LIGHT PERIOD:** The length of time in seconds required to complete one cycle of a light's flashing characteristic.
- LIGHT SECTOR:** The arc over which a light is visible.
- LIGHT SENSITIVE CONTROL:** A device actuated by the increase or decrease in illumination at the point of location used to turn a light on at sunset and off at sunrise; a sunvalve or sunrelay, for example.
- LIGHTSHIP:** A vessel providing aids to navigation services similar to a light station, i. e., a light of high candlepower and reliability, fog signal and radiobeacon, and moored at a station where erection of a structure is not feasible.
- LIGHT SOURCE:** A device placed at the focus of a piece of illuminating apparatus and emitting light rays which are collected by the optic.
- LIGHT STATION:** A manned unit providing a light of high candlepower and reliability; may also provide a fog signal and radiobeacon service, and is located on shore or on a marine site.
- LIGHTED BUOY:** A buoy which exhibits a light.
- LIGHTED SOUND BUOY:** A buoy exhibiting a light and sound signal.
- LIVE LOAD:** The load actually being hoisted on the hook as distinguished from the fixed weight of the boom and rigging.
- LOCAL NOTICE TO MARINERS:** A locally disseminated issue of Notice to Mariners affecting a specific area.
- LOOM OF A LIGHT:** The sky glow of a light when viewed from a point beyond its geographic range.
- LORAN:** See **LORAN SYSTEM**.
- LORAN BASELINE:** The segment of a station circle between the transmitters.
- LORAN BASELINE EXTENSION:** The portion of the station circle not contained in the baseline.
- LORAN CENTER LINE:** The hyperbola which is the great circle perpendicular to the baseline.
- LORAN CHARTS:** Loran navigational charts published by the Hydrographic Office, Coast and Geodetic Survey, and the Aeronautical Chart Survey, United States Air Force, for use aboard ships and aircraft.
- LORAN HYPERBOLA:** A line on the earth's surface along which all points have a constant time difference in their distances from two transmitters.
- LORAN LINE OF POSITION:** A segment of a hyperbola.
- LORAN PULSE LENGTH:** The length of the pulse wave form expressed in microseconds as measured at one-half peak amplitude.
- LORAN RECURRENCE RATE:** The rate at which pulses are transmitted.
- LORAN SKY WAVE CORRECTION:** The amount of time to be added or subtracted from the indicated time difference to reduce a sky wave observation to the corresponding observation for the ground wave "line of position." Amount of correction required is indicated on the Loran chart.

LORAN STATION: A radio transmitting station radiating timed or synchronized pulse signals used in the Loran system.

LORAN STATION CIRCLE: The great circle on the earth's surface passing through two synchronized transmitters.

LORAN SYSTEM: A long-range system of navigation by radio providing accurate lines of position or fixes at sea by pulse time-difference measurement.

LORAN TABLES: Loran tables provide coordinate information from which Loran charts are constructed. The tables may also be used instead of the charts for Loran navigation.

LORAN TIME DIFFERENCE: The time interval between the arrivals of any two synchronized pulses. This value is read directly on the Loran receiver-indicator installed in the vessel or aircraft.

LOW DISCHARGE BATTERY: A battery which has a very low rate of self-discharge, i. e., one that has long shelf life.

LOW PRESSURE TUBING: A composition brass tubing known as Tombac used in acetylene light systems between the regulator and flasher or where the pressure does not exceed 20 inches of water column.

LOW VOLTAGE LAMP: A lamp of 12 volts or less.

LUMEN: The unit of luminous flux.

LUMINOUS FLUX: The time rate of flow of light energy.

LUMINOUS INTENSITY: The ratio of luminous flux falling on a small surface normal to the direction of the light and the solid angle which the surface subtends at the source of the light.

LUMINOUS RANGE: The distance which a light can be seen as determined by the intensity of the light, the clearness of the atmosphere, and the sensitiveness of the observer's eye.

LUMINOUS SOURCE: A light source.

LUMINOUS TIME RATIO: The ratio of the length of a flash to the period.

M

MAIN (TACKLE, PURCHASE): A multiple hoisting purchase used on board tenders to hoist heavy weights. It is usually the most powerful tackle of a group of several hoisting tackles. It may be located at various positions on the boom in respect to the other tackles. Steam-powered tenders have the main at the end of the boom, then the single whip, and the relief tackle, each inboard of the other. Class A 180-foot tenders have the whip at the end of the boom and then the main and relief, respectively. The class B and C 180-foot tenders vary as to tackle nomenclature according to individual ships, this class of tenders not normally having a single whip.

MAINTAIN: Keep in efficient and reliable operation.

MAJOR FOG SIGNAL: A fog signal having a normal range of 1½ miles or more.

MAJOR LIGHT: A light of high candlepower and reliability exhibited from a fixed structure ashore or on a marine site (except range lights). Major lights are usually located at manned stations.

MANGEN MIRROR: A type of silvered glass mirror used quite extensively in range lights.

MANIFOLD (ACETYLENE): A fitting used as a common terminal for several tubings in an acetylene light system.

MANILA SLIP STOPPER: A length of manila rope with an eye spliced in one end, used to secure a sinker or bight of chain for tripping.

MANTLE: A woven open-mesh fabric hood saturated with a chemical which, when heated, deposits salts that release light energy when incandescent.

MARINE RADIOBEACON: A radiobeacon station whose service is intended primarily for the benefit of ships.

MARINE SITE: The site of a fixed structure in the water. Marine sites for aids to navigation are restricted to shallow depths.

MARKER BUOY: A small brightly painted moored float used to temporarily mark a location on the water while placing a buoy on station.

MARKER RADIOBEACON: A low-powered radiobeacon used primarily to mark a specific location such as the end of a jetty, rather than to merely furnish a point of reference from which a cross bearing may be obtained.

MARRY: To join together, such as two ropes joined in a seizing.

MEAN LOW WATER DATUM: An arbitrary reference elevation established in all navigable waters by the pertinent charting authority.

MEAN SPHERICAL CANDLEPOWER: The average of the intensities in all directions, usually abbreviated MSCP.

MECHANICAL BELL STRIKER: An automatic mechanical device for operating a minor fog signal. It may be weight-operated or CO₂- or electrically-powered.

MECHANICAL CHAIN STOPPER: A heavy steel device for stopping off or tripping mooring chain, mounted at the edge of the buoy port on a tender.

MICRO-LUX: Kilometer-candle.

MID-CHANNEL BUOY: A buoy located in a fairway, which may be passed on either side.

MILEAGE NUMBER: A number assigned to aids which gives the distance in sailing miles along the river from a reference point to the aid. The number serves as a Light List number for identification purposes. Principally used in the Mississippi River system.

MINOR FOG SIGNAL: A sound signal of normal range of 1 mile or less.

MINOR LIGHT: An automatic unwatched light on a fixed structure showing usually moderate to low candlepower.

MINOR STRUCTURE: A structure ashore or on a marine site which supports a daymark or minor light.

MISSING: A floating aid or minor structure not on regular location and whose whereabouts is unknown.

MISSISSIPPI RIVER-TYPE BUOY: A light weight unlighted buoy of unique design developed for use on rivers and now used in many inland areas.

"MODEER" SHACKLE: A special type of 1½- and 2-inch U shackle equipped with locking bar-type pin, widely used on West Coast tenders for hoisting and stopping off mooring chain.

MOORING: The chain connecting a buoy to a sinker. Sometimes used to include the sinker as well. Its purpose is to maintain the buoy or other floating object in a specific location in the water.

MOORING BUOY: A heavy mooring buoy to which vessels may be secured.

MULTIPLE FLASHER: An acetylene flasher showing flashes in groups of two or more flashes of equal duration separated by an eclipse of equal duration and the group separated by a longer eclipse.

MUSHROOM HORN: A horn mounted vertically and intended to give uniform distribution of sound.

N

NATURAL RANGE: When two objects such as trees, rocks, mountain peaks, etc., form a line of bearing passing through a buoy, observer, etc.

NAUTAPHONE: An electric diaphragm horn used as a fog signal and published in Notice to Mariners as Diaphragm Horn.

NINE-FOOT BUOY: A buoy 9-feet in diameter such as the 9 x 32, 9 x 38 lighted buoys (as described in Ch. 27).

NIGRESCENCE PERIOD: The duration of time beginning at the point where an electric circuit is cut off from an incandescent electric lamp to the time when the lumen output of the lamp has dropped to an arbitrarily selected value of 10 percent.

NIPPER CHAIN: A colloquial term for CHAIN SLING.

NONSPARKING TOOLS: Wrenches, hammers, bars, etc., fabricated from a metal which when struck on other metal will not emit sparks. These tools are used in servicing acetylene apparatus.

NOTICE TO MARINERS: Public announcements either by broadcast or printed notices disseminating marine information to the public, including items of establishment, change, or discontinuance of aids to navigation, as well as other items regarding obstructions, changes in channel conditions, etc.

NUN BUOY: An unlighted buoy having a visible conical upper section.

O

OCCULTING LIGHT: A light totally eclipsed at regular intervals, the duration of the light being always equal or greater than the duration of darkness.

OFF STATION: A floating aid has been moved from its station by adverse conditions; a deficiency to be corrected.

OPEN: The appearance presented by a pair of range lights, which indicates to the mariner that he is off the line marked by the two lights.

OPERATIONAL MAINTENANCE: The regular maintenance work performed in the field such as refueling (recharging), cleaning, or renewing of faulty parts, painting, or any other work performed to restore the aid to normal operation without altering its Light List description in any way. Synonym for SERVICING.

OPTIC: A device which projects a light beam of intensity greater than that of the light source.

OPTICS: The science of the generation, propagation and utilization of light.

OPTICAL RANGE: Luminous range.

OPTICAL SYSTEM: The assembled functional parts of an optic.

ORDER: The size of an assembled fresnel lens; An arbitrary unit of measurement.

ORIENTABILITY OF A SOUND SIGNAL: The property of a sound signal by virtue of which a listener can estimate the direction of the location of the apparatus producing the signal.

OUTAGE: The failure of an aid to navigation to function exactly as described in the Light List.

P

PANEL: A portion of a rotating assembled fresnel lens.

PARABOLIC MIRROR: A mirror whose reflecting area is a portion of the surface of a paraboloid.

PARTI-COLORED BUOY: A buoy whose visible surface is painted more than one color.

PASSING LIGHT: A light on a lateral aid. A term also specifically applied to a low candlepower lateral light mounted on a range light structure.

PEA-POD DINGHY: A type of double-ended small pulling boat developed for use in landing at exposed stations in the First District.

PELICAN HOOK: A hinged hook fitted with a sliding or hinged link for tripping while under a heavy strain. It is used for stopping off chain; sometimes called a chain stopper.

PENDANT: A length of wire rope with an eye spliced in one end and a hook in the other. Used for hooking on and picking up buoys and other weights. Sometimes called a pickup pendant.

PENCIL BEAM: A beam in which the light is concentrated in a single direction.

PERIOD: See **LIGHT PERIOD**.

PILE DOLPHIN: A minor light structure consisting of a number of piles driven into the bottom in a circular pattern and drawn together at the top. Referred to in the Light List as a **DOLPHIN**.

PILOT: A part of an acetylene lighting apparatus which provides a continuously burning flame for igniting the main burner on a flashing characteristic.

PIPING HARNESS: The piping assembly which connects the various components of the acetylene equipment of a lighted buoy.

POINT SOURCE: A light source that is very small in diameter, subtending less than 2 minutes of arc.

POLARIZED CONNECTOR: A plug-type, water-tight electrical connector so constructed that it is impossible to reverse polarity in making the connection.

POLYCHROME BEAM: A beam which is divided laterally into more than one color.

PREFOCUS COLLAR: A disc-shaped piece of metal fastened to the base of an electric lamp which permits the lamp filament to come to only one predetermined position.

PRELIMINARY CHARACTERISTIC: A long, slow flashing characteristic set up first on an acetylene flasher to facilitate timing the final characteristic exactly.

PREVENTER: A manila or wire rope or chain used to back up a tackle or other rigging device to relieve the strain and provide additional safety.

PRIMARY CELL: A type of battery which cannot be recharged; the elements must be renewed.

PRIMARY SEACOAST LIGHT: A landfall light of high candlepower and strategic location.

PRISM: A device for refracting light.

PRISMATIC MIRROR: A mirror assembled from caroptric prisms.

PRIVATE AID TO NAVIGATION: An aid to navigation authorized by the Coast Guard but established, operated, and maintained by others in the navigable waters of the United States.

PROGRAM DISK: The cam of a motor-driven electric flasher or radiobeacon timing device.

PROTECTIVE CAP: See **ACETYLENE CYLINDER CAP**.

PROTRACTOR, THREE-ARM: See **THREE-ARM PROTRACTOR**.

PURCHASE: See **TACKLE**.

Q

QUARANTINE BUOY: A yellow buoy which marks a quarantine anchorage area.

QUICK FLASHING LIGHT: A light showing a single flash at regular intervals, at a rate of not less than 60 flashes per minute, the duration of light always being less than the duration of darkness. It has a cautionary significance.

R

RACK: The athwartships or sidewise movement of a boom or derrick.

RACON: A radionavigation system transmitting, in response to a predetermined received signal, a pulsed radio signal with specific characteristics which provides bearing and distance data.

RADAR: A radiolocation system where transmission and reception are carried out at the same location, and which utilizes the reflecting or retransmitting properties of objects in order to determine their positions.

RADAR REFLECTOR: A physical arrangement of such material and design as to reflect back to an ordinary radar most of the energy that strikes its surface.

RADIOBEACON: Electronic apparatus which transmits a radio signal for use in locating a mariners position.

RADIOBEACON BUOY: A lighted buoy equipped with a low-powered radiobeacon transmitter.

RADIOBEACON CHART: A chart showing the location and other pertinent data for all radiobeacons operated by the Coast Guard.

RADIOBEACON MONITOR STATION: A shore station whose function is to check on the accuracy of radiobeacon transmissions of several stations in the area.

RADIOBEACON SIGNAL: The characteristic series of dots, dashes, or both which is emitted by a radiobeacon.

RADIOBEACON STATION: A manned unit whose function is to transmit radiobeacon signals.

RADIO DIRECTION-FINDING: A radiolocation in which only the direction of a station is determined.

RAMARK: A radio navigational system transmitting signals continuously which may be received by radar. Provides bearing information only (experimental).

RANGE: A pair of lights used to mark a line of definite bearing. To lay out chain in even rows on deck, ready for running over the side.

RANGE DAYBEACON: One of a pair of unlighted structures used to mark a definite line of bearing.

RANGE LENS: A bull's-eye type of lens used in range lanterns.

- RANGE LIGHT:** A piece of illuminating apparatus which projects a pencil beam.
- RANGE LIGHTS:** Two lights which form a range.
- REBASED LAMP:** A lamp which has had the base altered after its original manufacture in order to insure its having the exact height from the base to the filament.
- RECHARGED:** Refueling a minor aid, i. e., installation of acetylene cylinders or batteries.
- RECOVERED:** A previously reported **ADRIFT** or **MISSING** aid has been retrieved.
- REFLECTOR:** An optic which by reflection changes the direction of a beam of light.
- REFLECTION FACTOR:** The ratio of the light reflected from a surface and the light incident on the surface.
- REFRACTOR:** An optic which by refraction changes the direction of a beam of light.
- RELIEF:** A secondary multiple hoisting tackle on a tender.
- RELIEVED:** Replacement of an aid with an aid of the same type and characteristic.
- RELIGHTED:** A lighted aid, previously reported **EXTINGUISHED** has been relighted.
- RELOCATED:** Authorized movement from one location to another in the immediate vicinity with no alterations. Published Light List description and chart to be changed accordingly.
- REPLACED:** An aid previously reported **OFF STATION**, **ADRIFT**, and/or **MISSING** has been replaced by another aid of the same type and characteristic.
- RESET:** A floating aid previously reported **OFF STATION**, **ADRIFT**, and /or **MISSING** has been returned to its station.
- RESONATOR:** The horn portion of a piece of fog signal apparatus.
- REVOLVER:** A special case of a three-point fix where all objects are on or near the arc of the same circle and no specific location can be established using those angles; commonly called a **SWINGER**.
- RIVET-PIN SHACKLE:** A connecting shackle used in buoy moorings where the chain is subjected to wear such as in the **CHAFE**. The pin is heated and peened over.
- ROTARY FLASHING LIGHT:** A light which consists of one or more pencil beams projected from a piece of revolving apparatus.
- ROPE STOPPER:** A length of manila line used to stop off or secure a sinker or bight of chain, either permanently, or temporarily for tripping later.
- ROTTEN STOPS:** A light lashing intended to part under a strain; serves as a brake to check the speed and violence of chain running off the deck.
- SCREEN, COLOR:** See **COLOR SCREEN**.
- SEA BUOY:** A buoy located offshore at the entrance to a bay or harbor.
- SEA MILE CANDLE:** A unit of illumination equal to the illumination projected on the inside surface of a sphere, one sea mile in radius, by a light source of one candle at the center of the sphere, the transmitting medium being one of perfect transparency.
- SECOND CLASS BUOY:** The middle of a group of three-sized buoys of a specific type.
- SECONDARY LIGHT:** A major light of less strategic importance and usually less intensity than a primary seacoast light; usually located in bays and at entrances to harbors.
- SENSITIVITY OF A RANGE:** See **LATERAL SENSITIVITY**.
- SERVICED:** Regular maintenance work performed such as inspection, refueling (recharging), renewing faulty parts, painting, etc. without removing an aid from its location or altering its Light List description in any way.
- SERVICE PERIOD:** The number of days that an automatic minor light or buoy will operate without requiring recharging.
- SERVICE TIME OF A LIGHT:** See **SERVICE PERIOD**.
- "SERVICE" TYPE LIGHT APPARATUS:** Flashers, lanterns, etc. for minor aids manufactured for the Lighthouse Service at the St. George, Staten Island Base, N. Y. The apparatus is obsolete but is still widely used.
- SETTING A BUOY:** The act of placing a buoy on station in the water.
- SETTING STRAP:** An endless heavy wire strap about 20 feet long with short liverpool splices at intervals, thus forming a double strap with an eye at each end. It is used by certain West Coast tenders for setting large lighted buoys overboard.
- SHADE, COLOR:** See **COLOR SCREEN**.
- SHORT-LONG FLASHING LIGHT:** A light which shows a short flash of about 0.4 second duration followed by a long flash of four times that duration.
- SHOT:** A unit of measurement of chain equal to 15 fathoms.
- SHUNT:** A resistance connected in the circuit of a lamp changer to obtain optimum performance from a given lamp.
- SIGNAL TIMER:** A mechanical device controlled by clocks and used to control and program characteristics of radiobeacons.
- SINGLE FLASHER:** An acetylene flasher producing a series of single flashes of light. The duration of the flash and the eclipse may be regulated.

- SINKER:** A heavy concrete or cast iron buoy appendage which is attached to the lower end of the mooring chain in order to anchor the buoy in its charted position.
- SIREN:** A type of fog signal apparatus which produces sound by virtue of the passage of air through slots or holes in a revolving disk or drum.
- SKELETON TOWER:** A tower, usually of steel, constructed of heavy corner members and various horizontal and diagonal bracing members.
- SLING:** A rope, wire, or chain used to hold an object securely for hoisting.
- SLING CHAIN:** See **CHAIN SLING**.
- SLIP STOPPER:** A manila or wire rope used for securing an object which will later be tripped loose.
- SLOW FLASHING:** A light flashing at the rate of less than 60 flashes per minute. Lights listed in the Light List as flashing are slow flashing.
- SOLID COLOR BODY:** A buoy which is painted only one color above the water line.
- SOUND BUOY:** A buoy on which sound equipment is mounted.
- SOUNDINGS:** Depth readings taken whenever a buoy is set.
- SOUNDING POLE:** A long pole marked in feet to facilitate sounding in shallow water.
- SOUND LEVEL METER:** An instrument for measuring the intensity of sound in decibels.
- SOUND SIGNAL:** The sound emitted from a piece of fog signal apparatus.
- SPAR BUOY:** An unlighted buoy of long slender proportions made from the trunk of a tree.
- SPECIAL PURPOSE BUOY:** A buoy used to indicate a special meaning to the mariner and having no lateral significance.
- SPECIAL TYPE BUOY (CAN, NUN):** A cigar-shaped buoy having a can- or nun-type upper section, widely used throughout the Service.
- SPINDLE:** A slender pole-type daybeacon.
- SPLIT-KEY SHACKLE:** A widely used shackle for connecting chain to buoys and sinkers. It has a long slotted pin and a split leaf-type key. It is available in sizes from 1 to 2 inches and was formerly described by classes, one to four.
- SPREAD:** The horizontal divergence of a beam.
- SPREAD ROUNDSEL:** A lens which when inserted in a pencil beam increases the horizontal divergence equally on both sides of the optical axis.
- SPUDS:** Large vertical timbers hoisted and lowered in wells on certain inland tenders to anchor the vessel firmly in position.
- STANDARD TYPE BUOY (CAN, NUN):** An old type of unlighted buoy with a hemispherical bottom and can or nun upper section.
- STANDBY LIGHT:** A piece of illuminating apparatus entirely separate from the main light for use in an emergency at a major light station.
- STATION:** The authorized location of an aid.
- STATION BUOY:** An unlighted buoy established in the vicinity of a lightship or an important buoy as a reference point should the primary aid be dragged off station.
- STATION POINTER:** See **THREE-ARM PROTRACTOR**.
- STAYBOLT:** An acetylene tubing fitting connecting the buoy pocket to the buoy head.
- STOPPER, CHAIN:** See **CHAIN STOPPER**.
- STOPPER, ROPE:** See **ROPE STOPPER**.
- STRAP:** See **SLING**.
- STRONG FIX:** A position located by means of certain angles which are so situated as to give very accurate results.
- STORM PANES:** Sheets of clear, plain glass of a lantern surrounding the optic for protection from the weather.
- SUBMARINE SITE:** The site of a structure when located beneath the surface of the water.
- SURGE FACTOR:** The ratio of the average current demand of a lamp during the period it is flashing to the steady burning current.
- SUN RELAY:** A light-sensitive device for the control of electric lights.
- SUN VALVE:** A light-sensitive control device for acetylene lights.
- SWEDE WRENCH:** A tool used when connecting a shackle to hold split keys steady for spreading.
- SWINGER:** See **REVOLVER**.
- SWIVEL:** A pair of adjoining links, one of which may turn independently of the other; an appendage used in buoy and lightship moorings.

T

- TACKLE:** An assembly of blocks and rope (wire or fiber) for obtaining a mechanical advantage for hoisting weights.
- TAG LINE:** A measuring line used in marine surveys.
- TAIL LINE:** A line attached for steadying to the lower part of a buoy or other object being hoisted.
- TALL TYPE BUOY (CAN, NUN):** A large specific type of unlighted buoy used in deep water when a conspicuous daymark is desired.
- TANK (ACETYLENE):** See **ACETYLENE CYLINDER**.
- TANKHOUSE:** A small enclosure built as a part of or adjacent to the structure of an acetylene light for housing the gas cylinders. Also a colloquial term for **BATTERY HOUSE**.

TANK POCKET: See BUOY POCKET.

TAPPER, BELL (GONG): A freely swinging pendulumlike hammer actuated by wave motion on a bell or gong buoy.

TEETER BOARD: A means of dumping small sinkers overboard by hoisting a board placed underneath them on deck; mainly used on the West Coast and rapidly growing obsolete.

TENDER, BUOY: See BUOY TENDER.

TENDER CLASS CUTTER: See BUOY TENDER.

THIRD CLASS BUOY (CAN, NUN): The smallest of a particular class or type of unlighted buoy.

THOROUGHFOOT: A procedure used to clear a rope tackle of turns. The line is coiled down against the lay and the end brought up through the center.

THREE-ARM PROTRACTOR: An instrument used for plotting two horizontal sextant angles on a chart. Widely used in locating buoy positions.

THREE-POINT FIX: An accurate method of locating position using horizontal angles between three objects.

THRESHOLD OF VISIBILITY: The minimum amount of illumination which will cause the sensation of sight in a human eye.

TIME CLOCK: A clock which can be set to control an electrical circuit.

TOMBAC: See LOW-PRESSURE TUBING.

tone VARIATION: The change in pitch of a fog signal.

TOP: To raise or lower a boom by means of a tackle (topping lift).

TOPPING LIFT: A heavy multiple tackle supporting the weight of the boom and the object being hoisted. It controls the angle of elevation of the boom.

TOWER, BUOY: See BUOY TOWER.

TOWER, MINOR LIGHT: The structure supporting the light apparatus of a minor light.

TRANSMISSION FACTOR: A ratio which represents the fractional amount of light energy which is transmitted through a unit length of a partially opaque medium.

TRIPPING LINE: A line secured to an eye on the back of a lifting hook for controlling and clearing it from the object being hoisted or lowered.

TRIANGULAR LANTERN: A type of oil lantern used extensively in the Mississippi River area.

TRUMPET: A type of minor fog signal apparatus.

TUBE LINE: A line made fast to the tube of a buoy for steadying purposes.

TUBING, ACETYLENE: See ACETYLENE TUBING.

TURNING BUOY: A buoy used as a point of departure for a vessel setting a new course.

TWO-BLOCK A TACKLE: See BLOCK-AND-BLOCK.

TYFON: An air-operated diaphragm horn used as a fog signal.

U

UNATTENDED LIGHT: An unwatched light.

UNLIGHTED BUOY: A buoy not equipped with illuminating apparatus.

UNWATCHED LIGHT: An aid at which there is no resident personnel in constant attendance.

V

VANGS: See GUYS.

VEE BURNER: An acetylene burner shaped in the form of a Vee.

VENT, BUOY: See BUOY VENT.

VERTICAL BAR LANTERN: One with vertical astragals.

VERTICAL DIVERGENCE: The spread of a beam in the vertical plane.

V and H LANTERN: See DUAL-PURPOSE LANTERN.

V AND H LENS: See DUAL-PURPOSE LENS.

VISUAL RANGE: A term used for any range whether charted or not that may be observed from the position of a buoy to aid in its future relocation.

W

WARNING DEVICE: A device which warns the radiobeacon operator of beacon malfunction when the condition persists for more than 2 minutes.

WARNING RADIOBEACON: An auxiliary radiobeacon of short range, sounding a warble note, operated on every third minute immediately following the main radiobeacon and on the same frequency.

WASHERS, ALUMINUM: Washers used to seal acetylene connections. A new one must be used each time a connection is made.

WATCHED LIGHT: A light station with resident personnel constantly in attendance.

WATCH GALLERY: A balcony or gallery on a lighthouse at the level of the watch room.

WATCH ROOM: A room in a lighthouse immediately under the lantern.

WEAK FIX: A less accurate position computed with horizontal angles between objects poorly located.

WHIP: A single hoisting wire rope led from the boom and having a hook on the end for hoisting weights. It is one of the most useful tackles on a tender.

WHISTLE BUOY: A sound buoy equipped with a whistle operated by wave action.

WHISTLE TUBE: A long open-ended tube which runs through the center of the buoy body, and which, due to the up and down motion of the buoy, supplies compressed air required to blow the buoy's whistle.

WHITE LIGHT: A beam which is white in appearance.

WINTER BUOY (MARKER): An unlighted buoy or marker without sound signal which is maintained in certain areas during winter months when other aids are temporarily removed or extinguished.

WINTER LIGHT: A light which is maintained during those winter months when the regular light is extinguished. It is of lower candlepower than the regular light but of usually the same color and flash characteristic.

WITHDRAWN: Discontinuance of a floating aid for the winter season.

WORKED: A buoy is "worked" (colloquial expression) when it is serviced. Some consider it to mean only when it is cleaned, painted, or recharged and not relieved.

WRECK BUOY: A lighted buoy placed to mark a wreck.