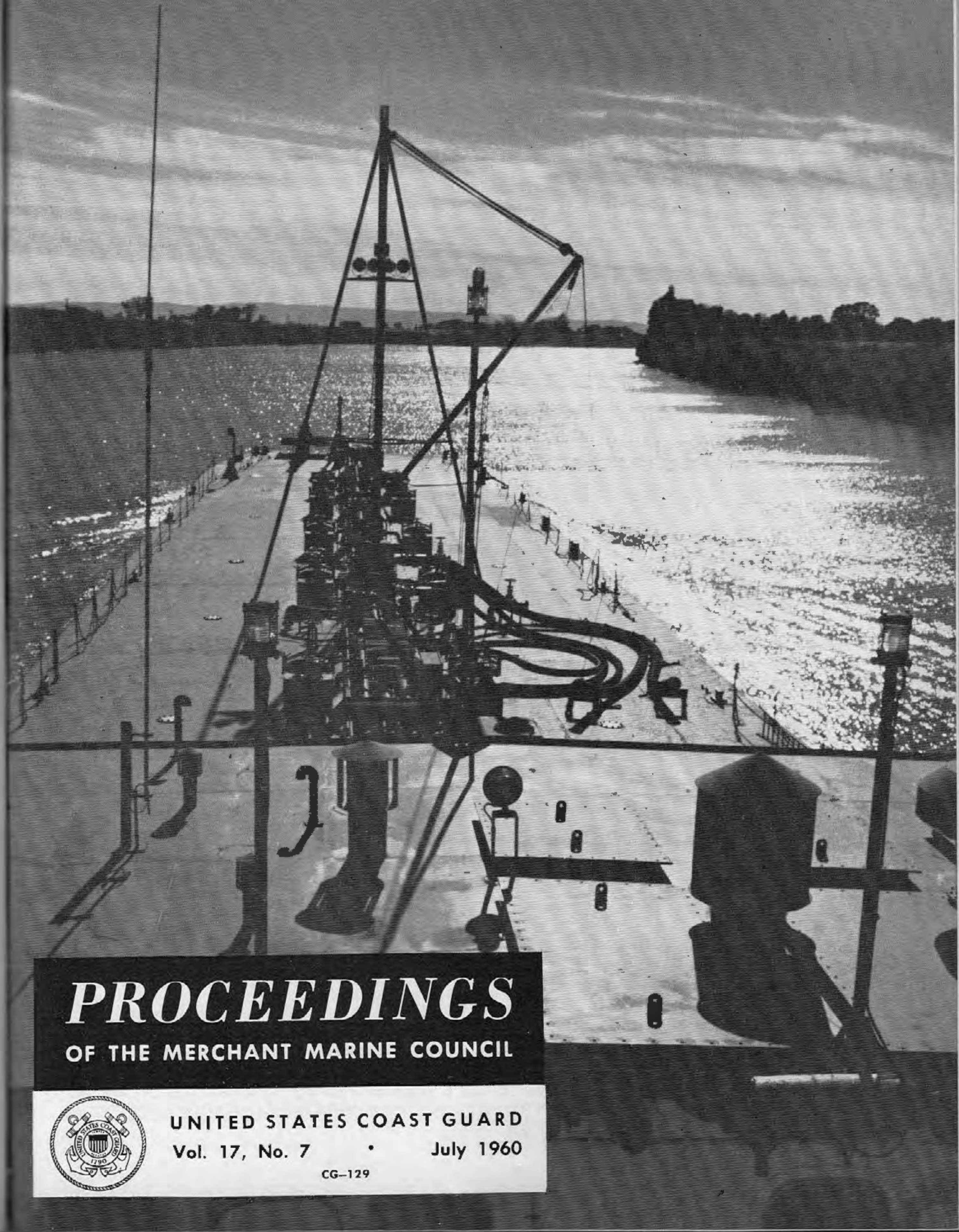

PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

UNITED STATES COAST GUARD

Vol. 17, No. 7 • July 1960

CG-129

PROCEEDINGS

OF THE

MERCHANT MARINE COUNCIL

Published monthly at Coast Guard Headquarters, Washington 25, D.C., under the auspices of the Merchant Marine Council, in the interest of safety at sea. Special permission for republication, either in whole or in part, with the exception of copyrighted articles or pictures, is not required provided credit is given to the Proceedings of the Merchant Marine Council. Use of funds for printing this publication has been approved by the Bureau of the Budget October 3, 1957.

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FRONT COVER

Heading into river bend at end of a long "reach," barge nears terminal at Sacramento. *Courtesy Standard Oil Co. of California Bulletin.*

BACK COVER

Barge noses in for landing on Sacramento River. *Courtesy Standard Oil Co. of California Bulletin.*

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ALMA AWARD

WATERMAN Steamship Corp.'s *City of Alma* was recently cited by the company's president for "the best safety record" in the Waterman fleet.

In presenting the award, J. K. McLean, head of the large American flag fleet, said the last lost-time accident aboard the *City of Alma* was September 2, 1958. The 10,000-ton cargo-passenger vessel is now in Waterman's west coast-Puerto Rican service and had been on the Pacific coast-Far East run for a number of years.

Shown in the above picture from left to right, standing, are: Chief Engineer James McDaniels, Chief Steward D. Ruddy, Capt. H. M. Samuels; Bos'n (holding ring buoy), Chris Christiansen, Ship's Delegate R. Statham, Chief Mate Emil Cholar, Second Mate E. Franklin; kneeling left, Radio Operator Raymond Harned; kneeling right, Steward's Delegate John Fifer.

ESSO TANKER RESCUES CREW OF YACHT

TANKERMEN aboard the SS *Esso Bethlehem* bound for Bayway, N.J., rescued five persons on the night of May 2, 1960. Brought to the scene by an "All Ships" broadcast, the crew of the *Bethlehem* rescued five yachtsmen off the foundering 45-foot ketch *Dutch Treat* despite heavy weather and seas up to 40 feet high. Capt. Arthur W. Smith of Staten Island, N.Y., the Bethlehem's skipper (second from left) congratulates his crewmen on a job well done. Shown, left to right, are these members of the tanker's No. 2 lifeboat crew that performed the daring rescue at the risk of life and limb; Benjamin Fisher, able seaman; the Captain; L. P. Stephens, chief mate in command; Marshall G. Price, second mate-coxswain; Wayne Birdsong, Jimmy Meigs, Anjou Quist, Robert Fagerstrom, and Matthew Lissman, all able seamen.

IN THE FINEST tradition of the sea, crewmen of the Humble Oil Co. tanker, SS *Esso Bethlehem*, on May 3, accomplished the rescue of five persons from the 45-foot yacht *Dutch Treat* 80 miles east of Charleston, S.C.

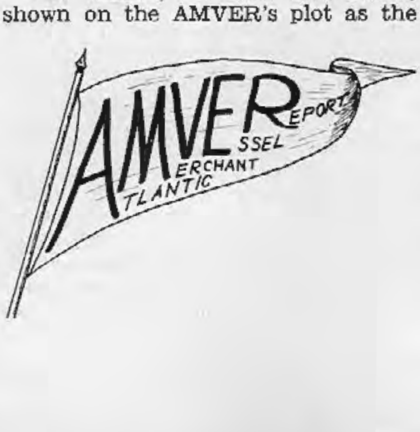
The yacht, manned by owner Arnold B. Moyer and a crew of four, met with trouble while on a pleasure trip from Fort Lauderdale, Fla., to Oxford, Md., when the yacht lost power and the weather turned bad.

The Miami SAR Center first learned of the distress from the skipper of the tug *Gatco Texas*. He stated that the *Dutch Treat* was disabled and that the 38-foot ketch *Kildeer* was standing by to assist. Immediately the Coast Guard Cutter *Sagebrush* was ordered to proceed and assist.

During the next 2 hours the weather grew worse. The wind increased to gale force and the seas became mountainous. Finally, the *Kildeer* lost sight of the *Dutch Treat*. The disabled yacht was reported swamped and in danger of sinking.

The Miami SAR Center swung into high gear. An "All Ships" broadcast was sent out; a plot of the merchant vessels in the vicinity of the stricken vessel was requested from the AMVER Center, located in the Coast Guard's Eastern Area SAR Center in New York; the Coast Guard Cutter *Papaw* was ordered to assist; the services of an Air Force C–123, flying in the vicinity of the *Dutch Treat*, were requested for an air search. Within 20 minutes the aircraft located the disabled yacht.

The tanker, SS *Esso Bethlehem*, shown on the AMVER's plot as the nearest vessel, was requested to assist. Her master, Capt. A. W. Smith, advised he was changing course immediately and was proceeding to assist. Another tanker, the SS *Gulfking*, also volunteered her services, but after 30 minutes she was not needed because the *Esso Bethlehem* reported sighting the stricken yacht.



Reaching the *Dutch Treat*, the *Esso Bethlehem* hove-to and succeeded in lowering a lifeboat. Heavy seas prevented the lifeboat from pulling alongside the sinking vessel. This meant that the crew of the *Dutch Treat* would have to jump into the water and grab lifelines thrown by the crew of the lifeboat. After several passes owner Arnold Moyer and his crew of four were rescued.

For the outstanding performance by the crew of his vessel, Captain Smith received a personal commendation from Commander Eastern Area.

The *Kildeer*, with six persons aboard, weathered the storm and reached Charleston, S.C., safely.

LOCAL RAIN WARNING BY MARINE RADAR

BY LAWRENCE E. TRUPPI

U.S. WEATHER BUREAU

Reprinted from Mariners Weather Log

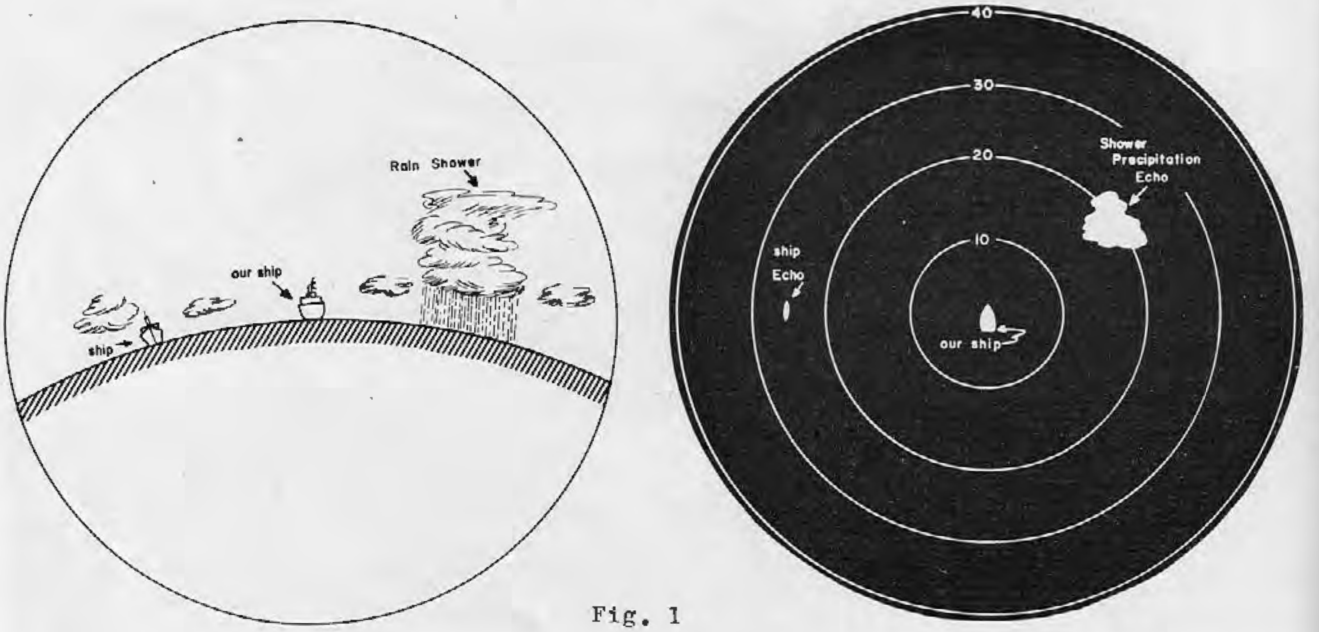


Fig. 1

THE RADAR instrument is employed to detect the presence and range of objects by use of reflected radiowaves. The radiowaves employed are of such high frequency they can be focused into a narrow beam by an appropriate antenna, and the direction or azimuth of the radio energy transmitted or received can be controlled.

If an object is in the path of the transmitted radar waves, the portion of the energy reflected back and received at the radar set reveals the object's (*a*) presence, (*b*) range (from the time difference between the transmission of the wave and the reception of its echo), and (*c*) the azimuth from the radar (the direction in which the antenna is pointed). Range and azimuth information place the object relative to the radar and successive positionings determine the track, direction of movement, and speed.

REFLECTION OF RADAR WAVES

Radar waves will reflect from masses of raindrops suspended in, falling through, or falling out of clouds in much the same manner as they reflect from solid objects such as ships, aircraft, or landmasses. In the range of frequencies used for weather radars, clouds themselves reflect little or no energy, so the average marine radar will not detect nonprecipitating clouds, including fog. Clouds which contain or are precipitating rain, hail, drizzle, snow, or sleet will reflect radar waves, and will be displayed on a vessel's plan-position indicator (PPI) scope.

METEOROLOGICAL PROBLEM

The meteorological problem of forecasting precipitation can be divided roughly into two parts; (*a*) determining the region where a precipitation-bearing cloud will develop, and (*b*) predicting the path of the precipitation once it has formed. Marine radar equipment may be used as an aid in forecasting only with respect to (*b*).

Any precipitation present in the atmosphere within range of a marine radar will appear on the PPI scope as distinctive echoes, commonly known as "rain clutter" (1). These echoes may be plotted by the mariner as if they were other vessels, and successive plots will reveal their course and speed. By extrapolating the track of a precipitation echo, it is possible to determine whether or not the echo will pass over the radar, and, if the tracks of the vessel and echo indicate a collision course, the "forecast" would be for some type of precipitation to begin with the arrival of the leading edge of the echo.

PLOTTING PRECIPITATION

Plotting of precipitation may be done on the same materials used for anticollision plotting. Plotting charts, tables, boards, or other mechanical plotting devices may be employed on which radar ranges and bearing fixes of rain echoes are plotted instead of ship echoes. Lacking any plotting aid, a translucent sheet of paper may be placed over the PPI scope and the rain echoes outlined in pencil at sucessive time intervals to determine course and speed.

The ability to predict the beginning of rain (even for a short period ahead) can be a definite asset. When a ship is loading or unloading a cargo susceptible to water damage, a radar plot of precipitation echoes can give ample time to close hatches or erect hatch tents. This has been found of great benefit in East Australia when loading sugar (2). Longshoremen there stop work when rain begins to fall and are unwilling to close up. A warning in time allows the dockers to cover the hatches before quitting and prevents extra work for the ship's crew and damage to the cargo.

ISOLATED RAIN SHOWER

Figure 1 illustrates how an isolated rain shower might appear on a radarscope. This represents an instantaneous picture of the situation, and plots of consecutive radar fixes would have to be made to determine if the ship was on a collision course with either the ship off the port beam or the shower off the starboard bow, particularly under conditions of darkness or low visibility. At sea, it may pay to take avoiding action in cases of an isolated rain shower such as this if there are corner hatches open for ventilation or if there are areas of wet paint.

WORKING CARGO IN AN OPEN ROADSTEAD

Figure 2 represents a hypothetical situation involving a vessel working cargo in an open roadstead. The radarscope revealed the presence of three individual showers within a radius of 40 miles of the ship, and, starting at 1300 hours, a rough plot of each echo was kept by means of placing a translucent sheet of paper over the radarscope, then encircling and labeling in pencil each shower echo at 30-minute intervals. By 1400, three consecutive plots had been made and the tracks of the showers were evident. The two showers which developed off either beam were moving away from the vessel and represented no problem. The shower astern was approaching, but if it held its course would pass about 10 miles to port. This echo would bear watching since it could hamper operations if it should change course or grow in area.

SHOWER OVER VESSEL

In figure 3, the same situation prevails, and the same plotting technique was used. In this case, a shower echo was first observed on the radarscope at 1000 hours, and by 1100 it had become evident that the present course of the shower would take it directly over the vessel. To find the speed of the shower, distances from the ship to the leading edge of the echo were measured either by estimation from the fixed range rings on the radarscope or direct measurement with the movable range ring. It was relatively easy in this case since the difference between the radar range at 1000 and at 1030 was 10 nautical miles, and the echo was approaching. The speed was 10 nautical miles in 30 minutes or 20 knots, a speed slightly higher than average for middle latitudes. Comparison of the 1100 with the 1030 plot indicated again a speed of 20 knots, and, since at 1100 the leading edge of the echo was 5 nautical miles away with a speed of 20 knots, the leading edge should arrive over the ship in 15 minutes. Moreover, range measurement indicated the distance from the leading edge of the echo to the trailing edge was 4 nautical miles, and thus with the rain area traveling at a speed of 20 knots. It should require approximately 12 minutes for it to pass a given point. Bear in mind that this is an idealized situation, and that rain showers often have erratic paths and speeds, and are continually changing size as indicated by the growth and dissipation of the echoes. Anyone responsible for working cargo in this particular case would know from his radarscope that (*a*) rain would start shortly after 1100, (*b*) rain would last less than one-half hour, and (*c*) work could resume immediately after the cessation of rain since no other precipitation echoes were visible on the radarscope.

FRONT & NONFRONTAL LINES

As figure 4 illustrates, precipitation echoes are often oriented in lines or belts when associated with cold fronts or occluded fronts (3). However, nonfrontal lines of showers or thunderstorms are also common. Usually wind and rain are heaviest when precipitation echoes combine into a solid line. Using a paper overlay, it is convenient to delineate the leading edge of the echo belt with a pencil line instead of encircling each individual echo. Radar ranges measured normal to the leading edge of the line at specified time intervals yield the speed and hence an estimated

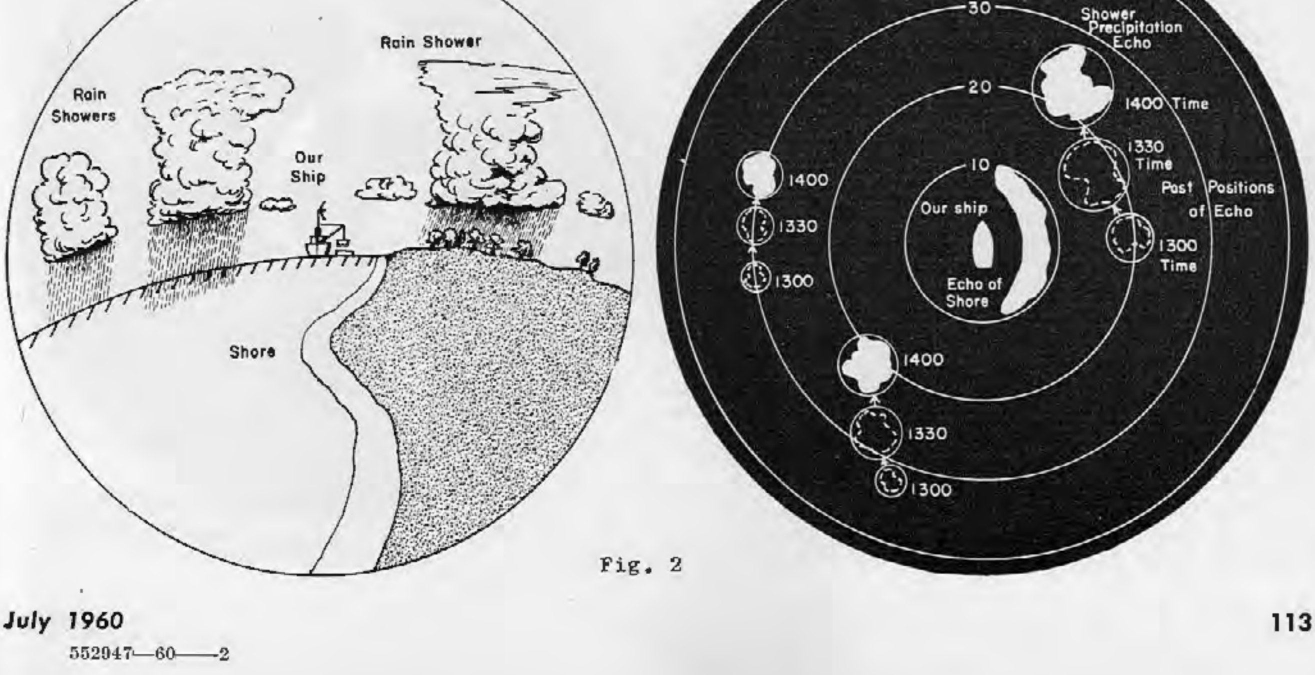


Fig. 2

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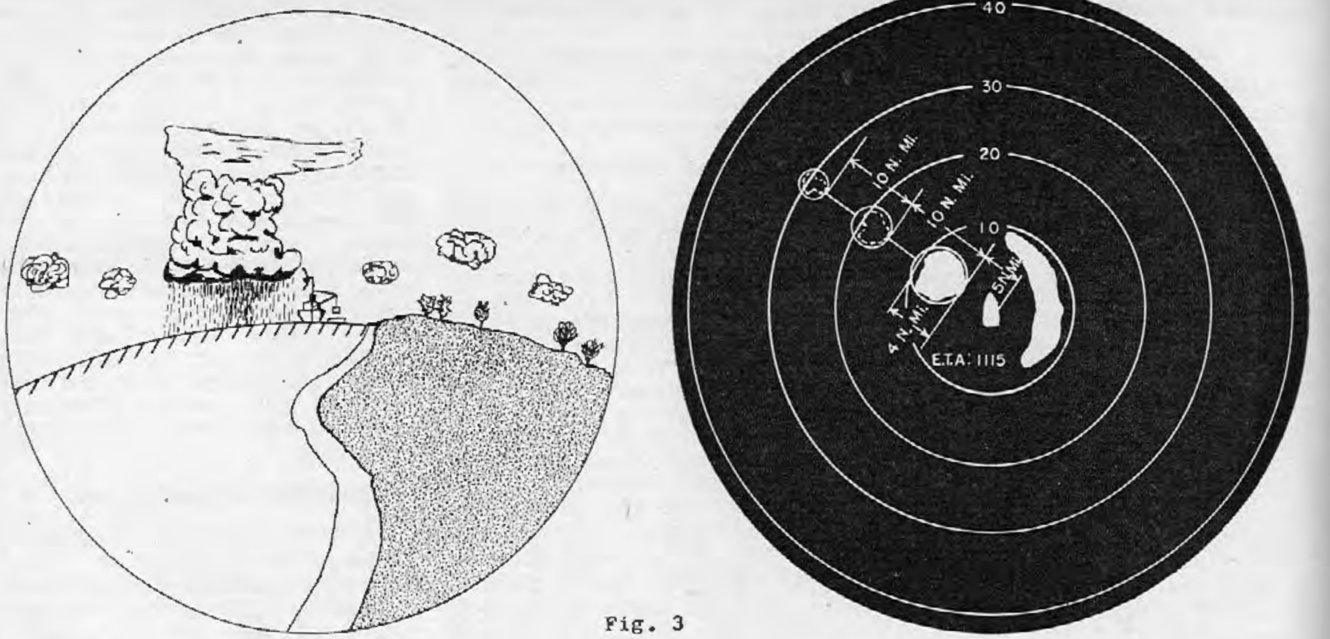


Fig. 3

time of arrival (ETA). The width and direction of motion of the echo line yields an estimate of the duration of the precipitation, just as in the case of single shower echoes. Note that between 1230 and 1300 hours the individual echoes have spread out and combined into one solid, continuous line. This phenomenon indicates an intensification of the rain and wind associated with the echo line. The radarscope display in figure 4 would indicate, (*a*) moderate to heavy showers or thundershowers between 1300 and 1400, (*b*) rain lasting less than 1 hour, and (*c*) precipitation not extensive, and operations resumable immediately after the rain ends. Often multiple lines of echoes appear and are responsible for the "stop and start" kind of

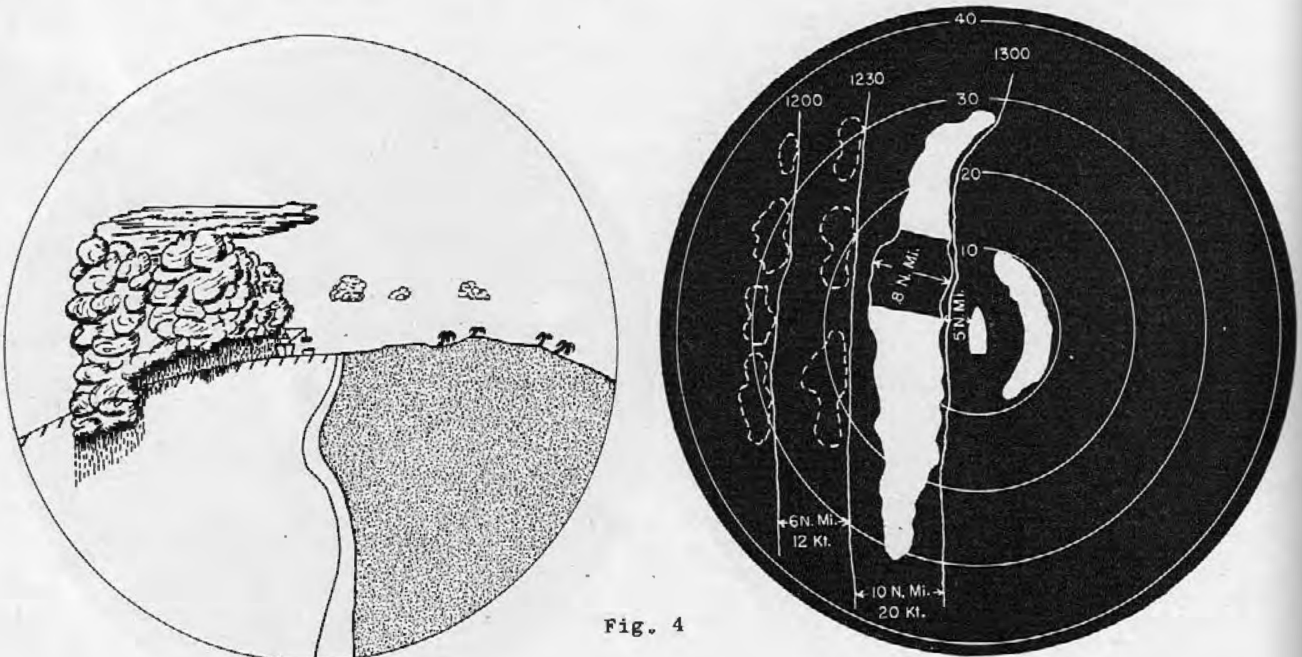


Fig. 4

shower activity as each belt of echoes passes over. Warm frontal precipitation, usually responsible for all-day drizzle common in winter, is variable, but most of the time it appears on the radarscope as a diffuse, sheetlike echo centered about the ship. The echo dissolves when precipitation ends or the trailing edge of the echo mass passes out of range.

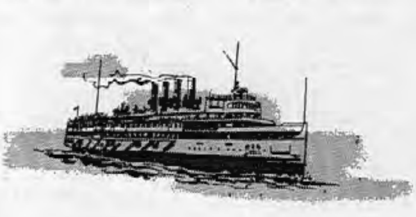
SUMMARY

The commercial type of marine radar is a valuable "weather eye" in addition to its primary functions in navigation and as an anticollision device. Since clouds do not reflect detectable radar energy unless there is precipitation within or falling out of them, radar can scan a cloud bank and reveal any showers or thunderstorms concealed inside as distinctive echoes. Consecutive plots determine the course and speed of the echoes, and it is therefore possible to anticipate the onset of precipitation by 1 to 4 hours. Also, the area of the echo, combined with its speed, yields an estimate of the duration of the precipitation.

It is important to bear in mind that the radar instrument cannot foresee the development or dissipation of precipitation, and it is possible for a rain shower to form directly overhead or for an approaching thunderstorm to suddenly die out. By merely locating and tracking precipitation already present in the atmosphere with radar, it is still possible to give sufficient warning of impending rain. Used in conjunction with daily weather forecasts, a marine radar can be a useful device in open roadsteads and small harbors where cargos are particularly vulnerable to unexpected downpours and where there are no large buildings or structures to interfere with radar operation.

REFERENCES

1. Truppi, L. E., "Radar and Weather," *Mariners Weather Log*, vol. 2, No. 1, Jan. 1958.
2. Burger, W., *Radar Observer's Handbook for Merchant Navy Officers*, Brown, Son & Ferguson, Ltd., Glasgow, S.I., 1957.
3. Van Straten, F. W., "Radar as a Weather Instrument; Manual," NAVAER 50–1P–544, BUAER, U.S. Navy, Washington, D.C., 1957.



SS ALABAMA SAVES NAVY MEN FROM ICY ATLANTIC

CHIEF ENGINEER Leonard Wood, Chief Mate A. B. Watts, and Steward Harris Doucet look on as Captain Harry X. Mousetis holds plaque awarded SS *Alabama* by the Atlantic Destroyer Force. Navy Lieutenant Sweeney reads commendation. Ceremony took place at Searsport.

Courtesy The Range Light.

"We were lucky. Bringing those men aboard was a hazardous operation. Later, when I inspected our *Alabama* crewmen involved in the rescue, I discovered quite an assortment of minor abrasions, nicks, and black and blue marks. They did a fine job," says Captain Harry Mousetis, Master of the SS *Alabama*, a tanker of the Texaco fleet.

At 1600 on February 4, the *Alabama* was steaming north, bound for Searsport, Maine. About 130 miles east of Cape Henry, an object off the port bow was sighted from the bridge. The Master altered course for a closer look. In a few minutes the object was made out to be a life raft with two men in it.

Heavy seas made the first pass unsuccessful, so Captain Mousetis decided to bring the *Alabama* to leeward of the raft and allow the wind (force 6, northeasterly) and waves (20 foot swells) to carry it to him.

DRENCHED ON DECK

Directing efforts of the crewmen on deck was the Chief Mate as they prepared to bring aboard the two survivors on the port side, forward of the midship house. The *Alabama* was rolling violently and decks were awash, even with engines stopped.

The radio officer contacted some Navy destroyers several miles away by blinker light, attracting them to the scene. Periodically he shifted to radio communications, keeping Captain Mousetis informed. He learned that 11 sailors had been swept from the decks of the USS *Daly* by a huge wave, and a search for survivors was underway.

With great difficulty the two men from the *Daly* were brought aboard. They were taken to the ship's hospital where they were treated for exposure and made comfortable. Captain Mousetis attended to a severe cut suffered by Buzzi.

A Navy ship, now in the scene, picked up another survivor in a raft that had been sighted by the *Alabama*. (The Navy saved three men; the *Alabama* two—six were lost.)

RENDEZVOUS AT SEA

Captain Mousetis proceeded toward Chesapeake Lightship to rendezvous with a Coast Guard cutter. At 0430 the next morning, the two Navy men were transferred to the USCGC *Marion*.

To the crew of the *Alabama*, the flurry of activity when they arrived at Searsport was a surprise. They hadn't expected the telegrams and letters of thanks and commendation—nor the plaque presented to them by the Navy for their "outstanding performance." There had been thanks enough in knowing that their efforts had averted tragedy for two families.

CAUTIONARY NOTES

CONCERNING AIDS TO NAVIGATION

PART 1—LIGHTS AND FOG SIGNALS

MARBLEHEAD LIGHT STATION, its white conical tower reaching 70 feet to the top of its lantern from the ground, stands on the northeast end of the point of the South Passage to Sandusky Bay, Lake Erie, Ohio. Its 350,000 candlepower light flashes red every 10 seconds for 3/10 second intervals from a height of 67 feet above low water, and can be seen at a distance of 16 miles.

EXPERIENCED MARINERS realize that the Coast Guard cannot keep the thousands of aids to navigation comprising the federal system under simultaneous and continuous observation and that, for this reason, it is impossible to maintain every buoy, daybeacon, light, fog signal and other aids operating properly and on its charted position at all times. Therefore, the safety of the mariner and that of all persons embarked or serving in vessels will be enhanced if every person who discovers an aid to be missing, sunk, capsized, or damaged, or who observes a defect in the position or characteristic of any aid, will promptly notify the nearest Coast Guard District Commander of the fact. Radio messages should be prefixed "Coast Guard" and transmitted directly to one of the U.S. Government shore radio stations listed under "Activity" in Section 400B of Radio Navigational Aids HO–205 for relay to the Coast Guard District Commander. If the radio call sign of the nearest U.S. Government radio shore station is not known, radiotelegraph communications may be established by the use of the general call "NCG" on the frequency of 500 kilocycles. Merchant ships may send messages relating to defects noted in aids to navigation through commercial facilities only when they are unable to contact a U.S. Government shore radio station. Charges for these messages will be accepted "collect" by the Coast Guard.

Suggestions for improvement in the system of aids should be submitted by mail to the Commandant (OAN), U.S. Coast Guard, Washington 25, D.C.

Some of the deficiencies, derangements, and unusual phenomena that occasionally occur and which are potential sources of danger to the mariner, and certain situations and conditions which require particular caution on his part, are discussed in the following paragraphs.

LIGHTS

The condition of the atmosphere has a considerable effect upon the distance at which lights can be seen. Sometimes lights are obscured by fog, haze, dust, smoke, or precipitation which may be present at the light, or between it and the observer, but not at the observer, and possibly unknown to him. On the other hand, refraction may often cause a light to be seen farther than under ordinary circumstances. A light of low intensity will be easily obscured by unfavorable conditions of the atmosphere and little dependence can be placed on its being seen. For this reason, the intensity of a light should always be considered when expecting to sight it in thick weather. Haze and distance may reduce the apparent duration of the flash of a flashing light. In some conditions of the atmosphere white lights may have a reddish hue. Colored lights are more quickly lost to sight under weather conditions which tend to reduce visibility than are white lights.

It should be remembered that lights placed at great elevations are more frequently obscured by clouds, mist, and fog than those near sea level.

In regions where ice conditions prevail in the winter, the lantern panes of unattended lights may become covered with ice or snow, which will greatly reduce the visibility of the lights and may also cause colored lights to appear white.

BRILLIANT SHORE LIGHTS

The increasing use of brilliant shore lights for advertising, illuminating bridges, and other purposes, may cause marine navigational lights, particularly those in densely inhabited areas, to be outshone and difficult to distinguish from the background lighting. Mariners are requested to report such cases as outlined above in order that steps may be taken to improve the conditions.

The "loom" of a powerful light is often seen beyond the limit of visibility of the actual rays of the light. The loom may sometimes appear sufficiently sharp to obtain a bearing.

At short distances, flashing lights may show a faint continuous light between flashes.

It should be borne in mind that, when attempting to sight a light at night, the range of vision is considerably increased from aloft. By noting a star immediately over the light an accurate compass bearing may be indirectly obtained on the light from the navigating bridge although the light is not yet visible from that level.

The distance of an observer from a light cannot be estimated by its apparent intensity. Always check the characteristics of lights in order that powerful lights visible in the distance shall not be mistaken for nearby lights showing similar characteristics at low intensity (such as those on light buoys).

If lights are not sighted within a reasonable time after prediction, a dangerous situation may exist requiring prompt resolution or action to insure the safety of the vessel.

CHARACTERISTICS

The apparent characteristic of a complex light may change with the distance of the observer. For example, a light which actually displays a characteristic of fixed white varied by flashes of alternating white and red (the phases having a decreasing range of visibility in the order: flashing white, flashing red, fixed white) may, when first sighted in clear weather, show a simple flashing white light. As the vessel draws nearer, the red flash will become visible and the characteristic will apparently be alternating flashing white and red. Later, the fixed white light will be seen between the flashes and the true characteristic of the light finally recognized—fixed white, alternating flashing white and red (F.W. alt. Fl. W. and R.).

EXTINGUISHED LIGHTS

There is always the possibility of a light being extinguished. In the case of unattended lights, this condition might not be immediately detected and corrected. The mariner should immediately report this condition. During period of armed conflict, certain lights may be deliberately extinguished without notice if the situation warrants such action.

If a vessel has considerable vertical motion due to pitching in a heavy sea, a light sighted on the horizon may alternately appear and disappear. This may lead the unwary to assign a false characteristic and hence to err in its identification. The true characteristic will be evident after the distance has sufficiently decreased or it can be determined by increasing the height of the eye of the observer.

SECTORS

Sectors of colored glass are placed in the lanterns of some lights to produce a system of light sectors of different colors. In general, red sectors are used to mark shoals or to warn the mariner of other obstructions to navigation or of nearby land. Such lights provide approximate bearing information since an observer may note the change of color as he crosses the boundary between sectors. These boundaries are indicated in the Light Lists and by broken lines on the charts. These bearings, as all bearings referring to lights, are given as true in degrees from 000° to 359° as observed from a vessel toward the light. Altering courses on the changing sectors of a light or using the boundaries between light sectors to determine the bearing for any purpose is not recommended. Be guided instead by the correct compass bearing of the light and do not rely on being able to accurately observe the point at which the color changes. This is often difficult to decide because the edges of a colored sector cannot be cut

Lights, fog signals, buoys, radio beacons, lightships and loran assist a master or mate in maintaining safety in navigation. Deficiencies, derangements and unusual phenomena, however, can occasionally occur in these aids. Certain situations and conditions require particular caution on the part of the mariner. This is the first in a series of articles prepared by the Staff of the Aids to Navigation Division, Office of Operations, U.S. Coast Guard, to assist the deck officer in his use of these navigational aids.

ED.

off sharply. On either side of the line of demarcation between white and red sectors, and also between white and green, there is always a small arc of uncertain color. Moreover, when haze or smoke are present in the intervening atmosphere, a white sector might have a reddish hue.

The area in which a light can be observed is normally a circle with the light as the center and the range of visibility as the radius. However, on some bearings the range may be reduced by obstructions. In such cases the obstructed arc might differ with height of eye and distance. When a light is cut off by adjoining land the arc of visibility is given, the bearing on which the light disappears may vary with the distance of the vessel from which observed and with the height of eye. When the light is cut off by a sloping hill or point of land, the light may be seen over a wider arc by a ship far off than by one close to.

Circles drawn on charts around a light are not intended to give information as to the distance at which it can be seen, but solely to indicate, in the case of lights which do not show equally in all directions, the bearings between which the variation of visibility or obscuration of the light occurs. Lights of equal candlepower but of different colors may be seen at different distances. This fact should be considered not only in predicting the distance at which a light can be seen, but also in identifying it.

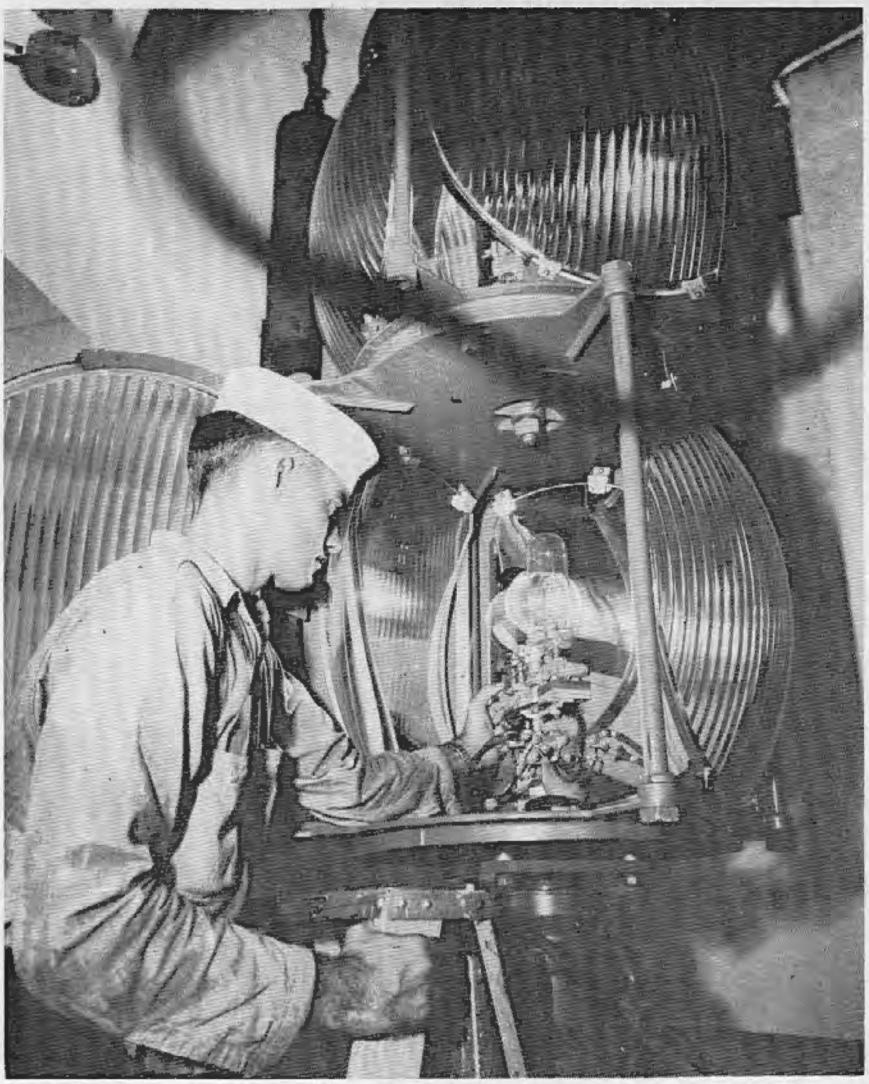
At many lights rip-rap mounds are maintained to protect the structures against ice damage and scouring action. There have been collisions with the uncharted, submerged portions of such rip-rap by vessels attempting to pass the lights extremely close aboard.

ONE OF THE U.S. COAST GUARD'S newest aids to navigation is the St. John's Light Station, located at Mayport, Fla., about three-quarters mile south of the mouth of the St. John's River.

The light station began operation in the fall of 1954, at the discontinuance of old St. John's Lightship, which had served since 1929 as a warning to mariners of the dangerous approach to the river entrance. The new light station includes a reinforced lighthouse of modern architectural design and two matching concrete-block quarters building for the four crew members and their families. It also includes a remote radio beacon antenna located at the river entrance, and St. John's Fog Signal which is built on a submarine site several hundred feet seaward of the end of the South Jetty, one of two parallel jetties protecting the river entrance.

The lighthouse is equipped with a revolving airways-type light beacon, a 25 kva emergency engine-generator, radiobeacon transmitting equipment, and control apparatus for the remote fog signal.

The new St. John's Light Station is the second station to furnish light from the land near St. John's River. The first lighthouse was built in 1830.



A COAST GUARDSMAN inserts a new 1,000-watt light bulb inside the lower mirrored compartment of St. John's Light at Mayport, Fla.

This revolving airways type LHB Beacon consists of a collection of mirrors at which each set there is focused a 1,000-watt bulb. Situated at a height of 83 feet above water, the mirror-reflected bulbs cast a 250,000 candlepower light visible for 15 miles.

Used in the latest built of U.S. Coast Guard light stations, this whole light assembly of St. John's slides down pipes to a position on the lantern deck inside the upper white square masonry tower where the stairs end, and where a Coast Guardsman stands on a ladder to make necessary adjustments. The lowering and raising of the light is made possible by means of lines worked by pulleys which lead to counterbalancing weights.

FOG SIGNALS

Fog signals depend upon the transmission of sound through the air. As aids to navigation, they have certain inherent defects that should be considered. Sound travels through the air in a variable and frequently unpredictable manner.

It has been clearly established that:

1. Fog signals are heard at greatly varying distances and that the distance at which a fog signal can be heard may vary with the bearing of the signal and may be different on different occasions.

2. Under certain conditions of atmosphere, a fog signal having a combination of high and low tones, it is not unusual for one of the tones to be inaudible.

3. There are occasionally areas close to the signal, in which it is wholly inaudible. This is particularly true when the fog signal is screened by intervening land or other obstruction, or on a high cliff.

4. A fog may exist a short distance from a station and not be observable from it, so that the signal may not be in operation.

5. Some fog signals cannot be started at a moment's notice.

6. Even though a fog signal may not be heard from the deck or bridge of a ship when the engines are in motion, it may be heard when the ship is stopped, or from a quiet position. Sometimes it may be heard from aloft though not on deck.

7. The intensity of the sound emitted by a fog signal may be greater at a distance than in the immediate proximity.

All these considerations point to the necessity for the utmost caution when navigating near land in a fog. Mariners are therefore warned that fog signals can never be implicitly relied upon, and that the practice of taking soundings of the depth of water should never be neglected. Particular attention should be given to placing lookouts in positions in which the noises in the ship are least likely to interfere with hearing a fog signal. Fog signals are valuable as warnings but the mariner should not place implicit reliance upon them in navigating his vessel. They should be considered solely as warning devices.

The Mariner *must not* assume:

1. That he is out of ordinary hearing distance because he fails to hear the fog signal.

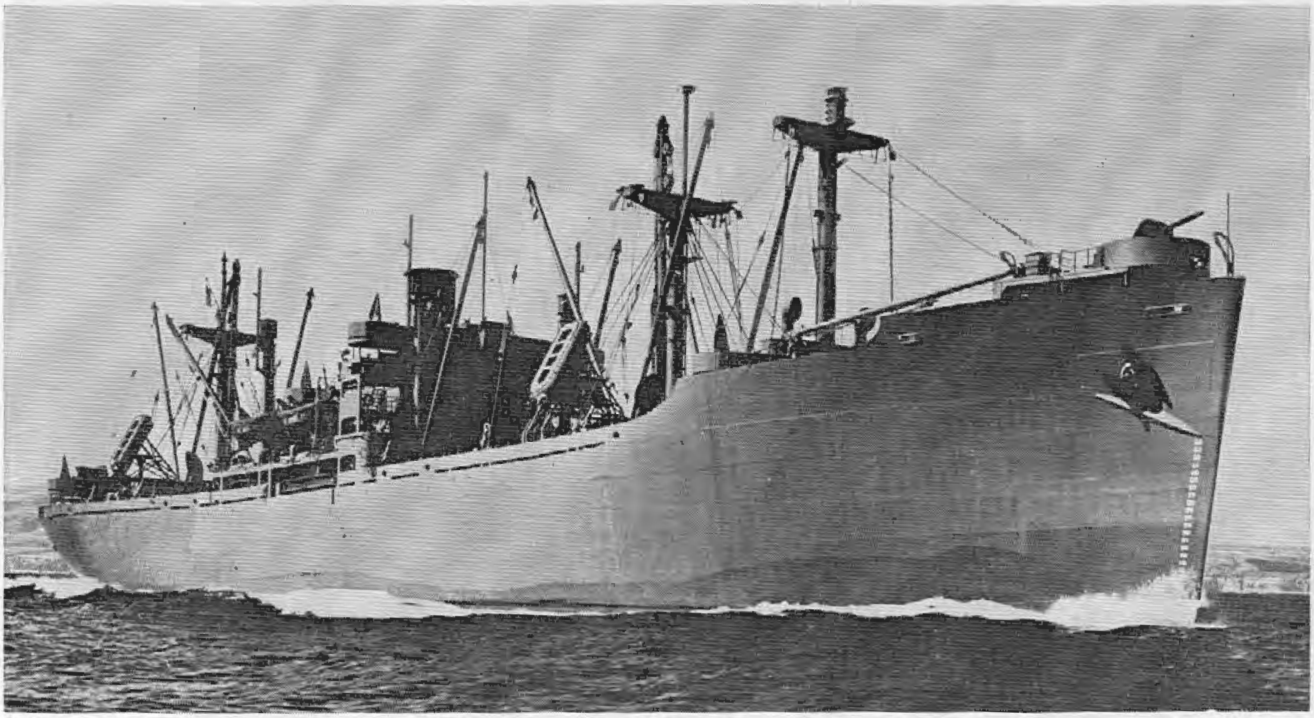
2. That, because he hears a fog signal faintly, he is at a great distance from it.

3. That he is near to it because he hears the sound plainly.

4. That the distance from and the intensity of the sound on any one occasion is a guide to him for any future occasion.

5. That the fog signal is not sounding because he does not hear it, even when in close proximity.

U.S. HONORS MEREDITH VICTORY



PRESIDENT EISENHOWER has signed into law an unusual bill commending the SS *Meredith Victory*, and its crew, for valiant work in evacuating 14,000 Korean refugees in one trip 4 days before Christmas in 1950.

Announcing the President's action, White House Secretary James C. Hagerty said the feat was so unusual that the White House had asked for a summary of the rescue operation.

The SS *Meredith Victory*, under charter to the Navy for the Military Sea Transportation Service, was engaged in providing logistic support to forces in Korea. The 455-foot ship had accommodations for 12 passengers.

Four days before Christmas 1950, the vessel waited offshore while guns hammered along the snow-covered hills of Hungnam, and encroaching Communist forces pushed the homeless civilians toward the waterfront. Thousands of the homeless huddled with their scant belongings with only one way to escape.

The ship's 37-year-old master, merchant marine Capt. Leonard P. LaRue, of Philadelphia, Pa., ordered his ship alongside a Hungnam dock, and directed that as many as could be accommodated be brought aboard. The endless stream of Koreans poured across the gangways. When he called for a count of passengers, his 35-man crew reported that 14,000 persons had boarded. It was equivalent to moving the population and personal possessions of a town approximately the size of Emporia, Kans.

SOME OF THE 14,000 persons packed aboard the "Meredith Victory" are shown in this photograph taken from the bridge deck looking aft. ***Photo courtesy Moore-McCormack Lines, Inc.***

Captain LaRue set aside the first-aid room as a maternity ward, where midwives delivered five babies during the first day. The steward's gang served food and water in 50-gallon drums.

An interesting sidelight to the *Meredith Victory* story is the fact that during the emergency rescue voyage, Captain LaRue decided upon a religious career. In 1951 he left the sea and entered the Benedictine Order. Now known as Brother Marinus, he is serving in St. Paul's Abbey in Newton, N.J.

The new law directs the Secretary of Commerce to issue a citation and award a plaque to the steamship *Meredith Victory*, award an appropriate citation ribbon bar to each person serving on board her at that time, and award a merchant marine Meritorious Service Medal to the master of the vessel at the time of the action, which will rank forever . . . "among the extraordinary achievements of a U.S. merchant marine long accustomed to acts of exceptional heroism among its officers and seamen," according to the White House announcement.

DON'T LET IT HAPPEN TO YOU

A RECENT survey of the boilers on a Liberty type vessel revealed that severe damage had been caused by the failure of the engineering personnel to properly maintain the boiler and in particular their failure to treat the feed water as necessary to prevent scale.

In the port boiler it was found that four 2" tubes and two 4" tubes had ruptured; that twenty 4" tubes and twenty-eight 2" tubes were blistered; and that the water sides of all tubes were contaminated with foreign matter to the point that the boiler was not in condition to be operated safely.

In the starboard boiler it was found that all tubes were badly contaminated, some to the point that the sediment almost completely filled the tubes. The replacement of 350 tubes was found necessary.

Before the boilers could pass a final hydrostatic test, it was necessary to replace nearly all boiler and superheater tubes in both boilers.

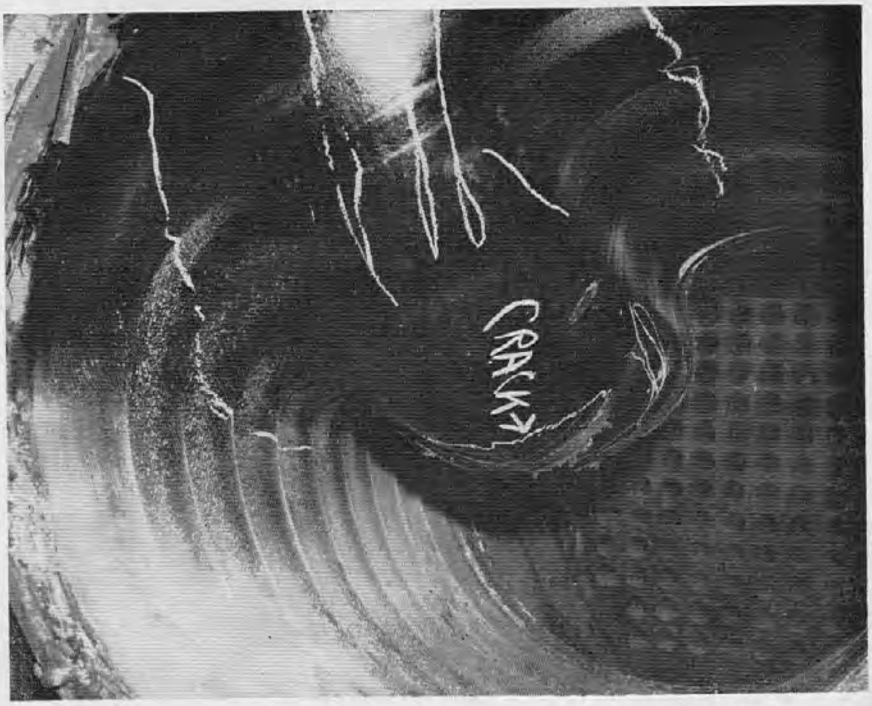
Samples of the sediment from one of the boilers were submitted to a laboratory test and the following information was extracted from the test report of the chemical company conducting the test:

	Percent
Loss on ignition	6.0
Water soluble	23.9
Iron Oxide	29.0
Silica	13.0
Calcium as calcium oxide	11.5
Magnesium as magnesium oxide	9.5
Sulphates	5.0
Undetermined	2.1
	100.0

Water Soluble Components

Active Alkalinity P–Alk	0.0
Total alkalinity M–Alk	0.6
Bicarbonate	0.7
Carbonate	0.0
Hydrate	0.0
pH	8.0
Chlorides	1.2
Phosphates	0.0
Sulphates	22.0

The high concentration of silica (normally anything over 10% is considered high) came in through the feed water and ultimately deposited itself on the scale when the conditions were favorable. This, plus the fact that the analysis showed no phosphates present both acid soluble or water soluble, indicates that the phosphate treatment was not maintained sufficiently high. A concentration of phosphates at 40 to 60 parts per million in excess normally prevents any deposition of silica since the calcium and magnesium preferentially form calcium and magnesium phosphate instead of the corresponding silicate scale.



A VIEW looking from the floor plates of a collapsed outboard furnace of a fire tube boiler. The collapse and rupture were caused by the overheating of the furnace while the boiler was fired with insufficient water. Inattention to the water level while blowing down the boilers was the cause of this casualty.

The high chloride condition which was maintained for several weeks manifested itself in the water soluble portion and was in part responsible for the high iron oxide (rust) content. This is due to the formation of Magnesium chloride which can under certain conditions form a dilute acid causing the formation of rust.

The general impression one can ascertain when scanning the log sheets is the blowdown schedule left a lot to be desired. Normally we use the chloride concentration as a guide to determine when we should blow down. It indicates the number of cycles of concentration and the amount of salinity in the system. For example, if we have a feed water with a chloride reading of 1.0 grains per gallon and a boiler water reading of 35.0 grains per gallon, then we have had a concentration factor of 35. This means all of the components in the feed water have been concentrated 35 times. Of course, this is assuming we have no salt water, per se, entering the system.

It is well understood by most engineering personnel that any system of boiler feed water treatment requires a daily analysis of the boiler water, a study of results obtained, and prompt action when the analysis calls for remedial action.

One should always remember that the chemical analysis can never be more accurate than the sample that is taken. It must be truly representative of the water in the boiler. Some type of cooling coil must be used to assure accuracy. The sampling connection and coil should be blown clear before taking a sample. All chemical equipment must be kept scrupulously clean and containers should be rinsed with sample water before the sample is measured out. All burettes should be kept free of reagents: this prevents the solution from drying on the upper walls, thus altering the strength of the reagent when the burette is refilled. Sample bottles should be stoppered tightly to prevent alkaline samples from absorbing CO_2 from the atmosphere and reconverting the hydroxide to carbonate, so that erroneously low results for alkalinity will be obtained with the phenophthalin titration. Be especially careful of samples for dissolved oxygen; these must be cooled to a lower temperature than the normal sample. Follow instructions as carefully as possible if a dissolved oxygen test is required.

Whenever opportunity permits, a thorough inspection should be made of all internal parts of the boiler to note the presence of scale, sludge, oil or corrosion in any form. Samples of any deposits should be collected for later examination to determine causes and suggested remedial changes in water treatment and operation. This suggestion may be applied as well to the inspection of equipment ahead of and beyond the boiler as the laboratory study of deposits may furnish valuable information. When boiler tubes require replacement for any reason, the rejected tubes offer an excellent opportunity for a minute examination of the results of corrosion. Recording the results of inspection for future reference should be an established part of the inspection procedure.

The above recommendations are those of the National Safety Council. In the case cited, it is obvious that the engineering personnel violated some of the primary facets of safety. Remedial action has been taken by the Coast Guard against the licenses of the engineering personnel responsible. DON'T LET IT HAPPEN TO YOU.

DON'T WAIT, MATE—LUBRICATE!

WIRE ROPE

By ARTHUR E. WILLS
United States P. & I. Agency, Inc.

WHEN a freshly painted, spick and span ship docks and the Port Captain boards her, saying "Mate, you've got her looking like a yacht," a glow of pride may surge through that worthy's arteries. Chances are nobody looks at the wire splices or spreads the strands of a runner to see what is inside. The standing gear probably is forgotten completely. Wire rope is the most neglected and least understood equipment on board a ship except, perhaps, the cook.

When should a wire rope be replaced? Many a mate has asked himself that question—how much a piece of wire could be trusted safely. There is no hard and fast rule. One prominent rope manufacturer wrote us, "There have been too many occasions where our estimate of a corroded rope's remaining strength based on external examination, has not come within a row of apple trees of its actual breaking strength. This is also the case with ropes that have been distorted and unbalanced by kinks or sets." If a rope has been distorted by kinks or sets; if its diameter has been markedly reduced; if it shows abrasion or pitting of the outside wires; if salt water and corrosion have penetrated it; if the inside is dried out due to inadequate lubrication; if the strands do not snap back after being separated by a marlin spike or screw driver; then such rope should be removed from service.

A new piece of wire rope will have been lubricated properly during manufacture. It is a well-designed machine, composed of many moving parts. All its parts work while it is in use so that lubrication must be frequent and ample. It must be fluid enough to penetrate to the core and heavy enough not to wash off in the first storm. Such lubricants do exist and are an economy. A "dry wire" will eat itself up. That can occur rapidly in salt air.

Once salt penetrates and corrosion gets a start, a wire rope becomes unsafe quickly, even though it appears normal or only slightly pitted to casual examination. If external wear alone cannot account for reduction in diameter or if rope strands are loose and mushy, it is a sign that a wire rope is corroded internally or that the core has deteriorated excessively.

Spots to examine particularly for corrosion are the parts immediately above patent sockets; wire seizings above fittings; wire under parcellings of canvas or rope yarn—unless frequently renewed; splices; and preventer loops around the heads of booms. Sometimes people don't want to get dirty, black grease on a nice clean boom—or the loop of wire may be painted with the boom. Unless that wire gets proper lubrication, it will dry quickly and deteriorate. Don't forget the insurance wires. Often they are overlooked during routine maintenance and when emergency arises, are found useless because of deterioration. Also, keep topping lifts coiled off deck. Too often they are struck by hatch beams or pontoons and badly cut when hatches are opened.

How many "fish hooks" can a wire afford before replacement is necessary? Some say six in a single 360° twist of one rope lay. In any case, the wire-breaking condition is progressive. It is cheaper in the long run to replace running gear too soon, rather than too late. There is no economy in having a runner part at 0300 and idle a full stevedore gang, even if nobody is injured and no valuable cargo is damaged, as happens so often.

When inspecting wire rope, look for:

1. Marked reduction in diameter.
2. Abrasions.
3. Broken wires and corrosion; pitting.

It is important to note the type and size and manufacturer's own specification furnished with each piece, or in the shipboard catalog, with respect to working load and breaking strain. Wire manufacturer's pamphlets are a "must" on board ship. Another excellent publication which gives many useful tips, as well as strength limits, types, etc., is the "Federal Specification for Rope; Wire, Federal Standard Stock Catalog, Section IV (Part 5)." It is issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., price 25 cents.

MARITIME SIDELIGHTS

New techniques in the use of radioactive isotopes for studying engine wear have become an effective method for studying what occurs inside a modern, high-output diesel engine.

The results of initial tests, according to Mr. E. J. Fithian, development engineer of the Cooper-Bessemer Corp., as reported in the *Waterways Journal*, show that:

The rate of lube oil consumption does not change during the first 100-hour run-in period.

If early high piston ring wear does exist, it has no apparent relation to oil consumption.

As engine speed and load increase, oil consumption increases.

Increasing of oil temperature and water jacket temperature decreases oil consumption.

The existence of the top oil ring on a piston has marked effect on maintaining low lube oil consumption.

The use of the radioisotope tracers is based on the effect that a radioactive tracer is carried into the exhaust stream from lube oil burned in the cylinder. As a result, sampling the exhaust stream indicates what is going on within the engine.

⚓ ⚓ ⚓

The present nuclear section of Todd Shipyards Corp. has been expanded into a fully operational nuclear division so that it can coordinate the rapidly increasing activities in the application of nuclear power, particularly in ship propulsion. Headquarters of the new division will be located in New York.

⚓ ⚓ ⚓

A nuclear-powered tanker using a boiling water reactor could be built to compete with conventional tankers by 1966 according to Verner Mize, a General Electric Engineer, in a talk to the Philadelphia Section of the Society of Naval Architects and Marine Engineers as reported in an article of the Journal of Commerce.

⚓ ⚓ ⚓

A prototype radar data computer, which will provide automatic evaluation of potential collision courses, will be available within a year, according to Mr. James W. Campbell, an official of Dunlap & Associates, Inc., in a talk to leaders in the maritime industry at a radar symposium, sponsored jointly by the Kings Point Alumni Association and the Institute of Navigation.

⚓ ⚓ ⚓

Tank vessels laid up throughout the world number 402 according to the latest report of Charles R. Weber Co., charter brokers, as reported in the *Journal of Commerce.* Of these vessels, 40 totaling 652,157 deadweight tons are U.S.-flag vessels and 362 of 5,844,098 tons are foreign flag.

The report shows that 224 of the ships now laid up were built in the years 1936 through 1945, 139 after 1945, 33 between the years 1925 and 1935, and 6 prior to 1925.

⚓ ⚓ ⚓

"Safety Line," a new four-page publication relating to the realm of shipboard safety, has been issued by the safety department of the Seafarers Welfare Plan.

The safety department of the Seafarers Welfare Plan is a joint labor-management undertaking on behalf of the unlicensed personnel employed in all shipboard departments on vessels owned and operated by companies under contract with the union.

The first issue highlighted a steady rise in ship safety and described plans to show training films to seamen at waterfront locations.

ADMIRALTY MATTERS

Rules of the Road; Radar

In *Weyerhaeuser SS Co.* v. *U.S.*, 174 F. Supp. 663, a cargo vessel and an Army dredge collided in fog. Both vessels were using radar, but neither were plotting. District Judge Roche held that there was mutual fault. One fault was the failure to have a lookout on the bow, which the Judge treated as a statutory fault under the circumstances. He also stated that the cargo ship could not have proceeded at a "Moderate" speed without a lookout in the bow. He based this statement on the ground that half the range of visibility was 188 feet and the distance from the bow to the lookout's position on the bridge was 205 feet. Another fault the Judge said was the failure of the cargo ship to alter course to starboard; the dredge did alter to starboard, but the cargo ship made course changes to port. By hindsight, the ships were meeting about end on when they picked up one another on radar. Judge Roche said:

"Rule 18, written before the advent of radar as an aid to navigation, specifically refers to instances in which the vessels or their lights are visible to each other. This court can see no reason why its application should not extend to a situation in which two vessels 'see' each other by radar. * * * The cargo ship knew the location and course of the * * * dredge when she was almost three miles away. The court must conclude that the * * * cargo ship should have turned right instead of left, and that her failure to do so is a statutory violation."

The dredge was held at fault for immoderate speed in fog. Concerning Rule 16, the Judge said:

"The record discloses that neither vessel stopped her engines upon first hearing the fog signal of the other, but that at the time, each had the other's position located on her radar screen. The court is of the opinion that 'ascertainment' of a vessel's position by radar is adequate justification for failure to comply with the technical requirements that engines be stopped."

Until there is a change in the International Rules or higher courts adopts Judge Roche's opinions, the Coast Guard will continue to consider that a vessel's "position" is not "ascertained" by radar (Rule 16(b)) and that a vessel does not "see" another by radar. RULE 18(a) MUST BE ABSOLUTELY FOLLOWED.

nautical queries

Q. (a) What provisions are made in the bilge system of a vessel to protect the pipes against being clogged or the pumps becoming damaged?

(b) How can the possibility of clogging the bilge suction be reduced when carrying granular cargo such as grain, coal, rock ballast, etc.?

A. (a) Each individual bilge suction should be fitted with a suitable bilge strainer having an open area of not less than three times that of the suction pipe. In addition, a mud box or basket strainer should be fitted in an accessible position between the bilge suction manifold and the pump.

(b) When carrying cargo of a granular nature such as grain, coal, rock ballasts, etc., the possibility of the bilge suction becoming clogged can be reduced by increasing the strainer area. This may be accomplished through constructing a box over the bilge strainer covered with burlap or wire mesh; or other devices may be employed with the same result.

Q. (a) How may the tendency to shift of a bulk commodity be estimated?

(b) Discuss the factors that may influence the tendency of a cargo to shift.

A. (a) The common method for estimating the tendency of a bulk cargo to shift is by noting its angle of repose. This may be done with such goods as pulverized ore by heaping it with a shovel and noting the angle at which it comes to rest.

(b) In using the angle of repose to determine the tendency of a bulk cargo to shift, consideration must be given to the other factors which may increase likelihood of shifting. These are: (1) The change of direction of motion as a ship comes to the end of a roll and commences rolling to the opposite side. This affects the tendency of cargo to shift as well as does the angle of roll. For a given amplitude of roll the quicker the motion, the greater is this effect. (2) The location of stowage. Location of stowage influences the likelihood of shifting. Cargo stowed high in the 'tween decks is much more likely to shift than cargo stowed low down near the centerline.

Q. What are the three basic methods of protecting personnel when stowing radioactive materials?

A. The three basic considerations to be kept in mind in protecting personnel when carrying cargo of a radioactive nature are: (1) keeping the cargo at a safe distance from personnel, since the radiation varies inversely as the square of the distance; (2) limiting the time of exposure of men handling such materials; (3) stowing the material in such a manner that other cargo which can act as a shield is interposed between the source of radiation and crew members or other personnel who are aboard the vessel for a lengthy period.

Q. A vessel reserves 30 by 60 feet of the deck area of a hold for 300 tons of machinery parts stowing at 30 cubic feet per ton. How high will be consignment of machinery stow?

A. $30 \times 60 = 1{,}800$ square feet of deck area

$30 \times 300 = 9{,}000$ cubic feet of cargo

$\frac{9{,}000}{1{,}800} = 5$ feet.

Q. A vessel is fitted with deep tanks with a capacity of 1,000 tons of fresh water. What quantity of peanut oil with a specific gravity of 0.92 could be transported in such tanks?

A. $1{,}000 \times 0.92 = 920$ tons.

Q. In lifting a cargo of heavy oil, when the vessel is down to her marks before all tanks are full, is it best to leave each tank slack or to fill up as many tanks as possible and leave only the minimum number of tanks slack? Explain your answer.

A. In general it is best to fill as many tanks as possible, leaving slack as few tanks as possible. This causes least reduction in ship's stability due to free surface and minimizes the danger of damage to bulkheads, deck, and shell due to dynamic action of fluid in the slack tanks.

Q. When a vessel which is fitted with heating coils in her tanks is carrying light fuel such as kerosene or gasoline, what precautions should be taken to eliminate any possibility of contaminating boiler feed-water, inspection tanks, heating pipe lines, etc.?

A. When a vessel which is fitted with steam coils in her cargo tanks is carrying light oils such as kerosene or gasoline, the steam lines to the heating coils should have all valves tightly closed and blank flanges inserted where possible to eliminate any possibility of contaminating boiler feed-water, inspection tanks, steam lines, etc.

Q. Briefly describe the operation of a hydraulic speed-limiting governor on a main propulsion turbine.

A. The overspeed control valve is usually held open against spring pressure by oil at constant pressure which is supplied by the lubricating oil service pumps. This oil is supplied to the operating cylinder through a pilot valve which, when actuated by the governor, will shut off the oil flow and drain the operating cylinder, thereby allowing the spring pressure to close the overspeed control valve. The pilot valve may be actuated hydraulically by a small centrifugal oil pump directly connected to the turbine shaft or by mechanically connected speed governor weights or flyballs.

Q. Give three conditions which will cause overheating of the commutator.

A. Three conditions which will cause overheating of the commutator are:

1. Sparking at the brushes;
2. Brush pressure too high; or
3. Overloading.

Q. How is distance measured on a polyconic chart?

A. Distance is measured on a polyconic chart by using the scale of distance values on the chart.

COMBUSTIBLE GAS INDICATOR

The third paragraph of the answer on the combustible gas indicator, *Nautical Queries*, April 1960 PROCEEDINGS, states that the switches for a combustible gas indicator should not be operated in a gaseous atmosphere as the case is not explosionproof.

It has been brought to the attention of the editor by a leading manufacturer that the switches of his instrument were tested in a maximum explosibility mixture without initiating an explosion.

However, the testing laboratory also concluded that in the interests of overall safety in practice, personnel should always be cautioned against operating switches after entering any suspected hazardous atmosphere.

UNITED STATES COAST GUARD

ADDRESS REPLY TO:
COMMANDANT
U.S. COAST GUARD
HEADQUARTERS
WASHINGTON 25, D.C.

MVI
21 March 1960

Commandant's Action

on

Marine Board of Investigation; collision between the SS *Monrovia* (Liberian) and the SS *Royalton* (Canadian), Lake Huron, 25 June 1959

The record of the Marine Board of Investigation convened to investigate subject casualty, together with its findings of fact, opinions, and recommendations, has been reviewed.

At 1357, CDST, 25 June 1959, the Liberian vessel SS *Monrovia* collided in dense fog with the Canadian bulk freighter SS *Royalton* in Lake Huron 104° T. from Thunder Bay Island Light, Michigan. As a result of this collision the *Monrovia* sank and the *Royalton* suffered considerable bow damage. No lives were lost and no injuries were reported to either vessel's personnel. The *Royalton* was radar equipped, but the *Monrovia* was not.

The *Monrovia* inbound to Chicago dropped her Canadian pilot at the Lake Huron Lightship and took departure at 0215, 25 June 1959. A course of 353° T. was set and full ahead was rung up on the engine order telegraph which gave the vessel an estimated 9 miles per hour over the ground. The master was at the conn upon leaving the lightship and remained on the bridge up until the collision. The vessel was not equipped with radar and at no time was a lookout posted on the bow. At 0340 visibility decreased and fog signals were commenced. Harbor Beach Light was passed abeam unseen, but the fog signal was heard. Course was changed to 344° T., but no reduction in speed was made. At 1200 the master estimated the vessel's position off Thunder Bay based on one RDF bearing on Thunder Bay Island Light and a fathometer sounding. Course was changed to 340° T. and speed was reduced to 8 MPH. At 1330 after another RDF bearing on Thunder Bay Island Light and another fathometer reading the course was altered to 020° T., presumably to give Thunder Bay Island Light a wide berth. Approximately 5 minutes later fog signals from the vessel which later proved to be the *Royalton* were heard from dead ahead to slightly on the port bow. The signals continued to be heard from the same general bearing and became increasingly louder until about 1354, when the master ordered a one-blast signal as an invitation to pass port to port and ordered the vessel's rudder hard right. No reply was heard to this one-blast signal, but the *Royalton*'s fog signals continued to be heard. Three minutes after the first one-blast signal, the *Monrovia*, still swinging on a hard right rudder, sounded a second one-blast signal. Moments thereafter, at approximately 1357, the *Royalton* appeared out of the fog 100 feet away on the port bow heading directly toward the *Monrovia* at an agle of between 60° and 90°. The vessels collided at an angle of about 90°, with the *Monrovia* swinging to the right so as to scrape her portside across the *Royalton*'s stem, ultimately holing the *Monrovia* just abaft the bridge.

The SS *Royalton* en route from Duluth, Minn., to Montreal, Quebec, with 10,670 tons of grain, took departure from Detour Reef Light at the northern end of Lake Huron at 0615, 25 June 1959, steaming full ahead at 11.4 MPH. Fog set in at 1145, fog signals were commenced and a lookout was stationed on the bow. Standby was rung up on the engine order telegraph and compliance by the engineroom automatically resulted in a reduction of speed to 11.2 MPH. At 1305, while on course 161° T., Thunder Bay Island Light was observed by radar to be abeam 9.6 miles distant. This position was approximately 1.4 miles west of the westerly limit of the downbound course recommended by the Lake Carriers' Association. At this time course was changed to 159° T. At about 1320 a radar target later determined to be the *Monrovia* was sighted approximately 13 miles, 2° on the starboard bow. The heading was altered 5° to the left and was maintained for 12 to 15 minutes, when another alteration of 5° to the left was made and held for 8 to 10 minutes. No radar plot was made, but when the target bore 12° on the starboard bow 10 miles distant the master and mate assumed the two vessels would pass starboard to starboard at least 1 mile off. At about 1340, with the target bearing 30° to 35° on the starboard bow 5 miles away, course was changed another 12° to the left to 137° T. and speed was reduced to slow ahead, about 3 MPH. At the same time a three-blast fog signal was first heard from the *Monrovia* bearing about 30° on the starboard bow. Having been previously advised of intercepted radio information that an unidentified salt water vessel was upbound on the downbound course, the master assumed that the approaching vessel was the one referred to. During the next few minutes the master made two attempts to contact this vessel by calling, "Salt water ship upbound on the downbound course," or words to that effect. No replies to these calls were received. At about 1342 or 1343 with the vessels 4 miles apart, a two-blast signal, apparently to indicate a starboard-to-starboard passing, was sounded by the *Royalton*. No reply was heard and when the vessels had closed to 2.5 to 3 miles, a second two-blast signal was sounded to which a one-blast signal was heard in reply. Immediately the danger signal was sounded. Either before or after the second two-blast signal the engine was rung full astern followed by double (emergency) full astern. Approximately one-half minute before the collision the bow of the *Monrovia* appeared out of the fog 45° on the starboard bow 400 feet away, apparently swinging to a hard right rudder. At 1357 the two vessels collided as previously described, with the *Royalton* estimated to be dead in the water or nearly so, swinging to the right past a heading of 160° T. due to the engine going astern.

After contact the *Royalton* stopped and stood by, but lost sight of the *Monrovia* in the fog. Her damage was confined to the extreme bow, with flooding of the forepeak compartment but no assistance was required.

Immediately following the impact the master of the *Monrovia* ordered the engineers to start pumping No. 2 hold. The engineer on watch opened the ballast suction line valves to No. 2 and No. 3 holds, but before he could start the pumps he was called on deck to abandon ship. The ballast suction line valves were left open. None of the other officers entered the lower engineroom following the accident, although there appears to have been ample time before the vessel sank to have appraised the damages and the possibility of saving the ship. Some confusion resulted when attempts were made to lower the lifeboats due, apparently, to the crew's unfamiliarity with the equipment. In this connection the Board found that no lifeboat drills had been held during the voyage. Within an hour after the collision the crew of the *Monrovia* had successfully abandoned ship and were taken on board the American bulk carrier SS *Norman W. Foy*, which was also standing by. The master and some of the crew then reboarded the *Monrovia* to determine whether the flooding could be controlled. At this time the vessel was found to be making water in No. 2 and No. 3 holds and the machinery spaces and it was decided that no action could be taken to save the vessel. After removing some personal gear to the *Foy*, the group returned to the *Monrovia* a second time for additional gear. Navigation records were apparently left on board. At 0010, EST, 26 June 1959, the *Monrovia* sank in 21 fathoms of water.

REMARKS

The principal cause of this collision was the failure of the *Monrovia* to reduce her speed to bare steerageway and navigate with caution upon hearing, apparently not more than four points from right ahead, the fog signal of the other vessel.

The failure of both vessels to follow the tracks recommended by the Lake Carriers' Association and the Dominion Marine Corp. for vessels navigating the Great Lakes was a factor in this case, since had they been adhered to the resultant separation would have precluded collision. It is noted, however, that the easterly limits of the upbound course between Middle Island Light and Thunder Bay Island Light are drawn so that an upbound vessel is forced to pass close to or cross the 22-foot shoal marked by Thunder Bay Island Shoal Lighted Bell Buoy. Considering the *Monrovia*'s draft of 19′ 3″ aft, coupled with the fact that her navigation was by the uncertain method of RDF bearing and fathometer readings, her departure from the recommended track and change of course to 020° T. at about 1320 or 1325 is understandable. In this connection the Board's opinion No. 10 and the inference in opinion No. 2 that the lack of a pilot aboard the *Monrovia* contributed to this collision, is not concurred in. Even if a pilot were at the conn, the master, being solely responsible for the navigation of his vessel, could properly have ordered that Thunder Bay Island Shoal Lighted Bell Buoy be given a wide berth despite the course recommendations by the Lake Carriers' Association and the Dominion Marine Corp. It should also be noted that the master of the *Royalton* with over 20 years' experience on the Great Lakes did not comply with these recommendations and did in fact navigate his vessel to the westward of the westerly limit of the downbound course.

The Board's opinion that the situation was one of crossing vessels is not concurred in. The Board found that the *Royalton* first observed the radar target which later proved to be the *Monrovia* 37 minutes before collision, 13 miles away, 2° on the starboard bow. The *Royalton* at that time was steering 159° T. and had she known the *Monrovia* was on the nearly reciprocal course of 340° T., her assumption that the situation was one of meeting vessels might have been justified. Actually, since the *Royalton* did not plot the *Monrovia*, did not establish radiotelephone communication, and knew only that there was supposed to be an upbound salt water ship somewhere in the vicinity, she could only speculate whether this upbound ship would present a meeting or crossing aspect. The *Royalton* was only a little better informed as to meeting or crossing rules than if she had had no radar and no radiotelephone. In this connection it is further considered that, in the absence of any determination as to the course or intention of the *Monrovia*, the course alterations to the left on the part of the *Royalton* were ill advised.

The Board also took notice of the *Monrovia's* failure to have a lookout on the bow. Such failure may also have contributed to the casualty since a proper lookout could possibly have heard the *Royalton's* two-blast signals.

As set forth by the Board, the failure of the *Monrovia* to sound the danger signal when she received no reply to her one-blast signals constituted violation of Rule 23 (33 U.S.C. 291); however, since the *Royalton* was already aware that a dangerous situation was developing and was in fact taking evasive action, it is considered doubtful that this failure in any way contributed to the collision.

With respect to the Board's recommendation No. 1, the Agreement between the United States and Canada for the Promotion of Safety on the Great Lakes by Means of Radio applies to vessels of all countries as provided in article 3 of that agreement. Article 1, paragraph 3, provides further that the regulations annexed to the agreement are an integral part thereof and also apply to vessels of all countries.

The principle of separate tracks for vessels as a means of reducing the number of collisions is well recognized. To be fully effective, however, such tracks must not conflict with statutory rules or otherwise be inconsistent with the established principles of prudent navigation.

It is considered that there is sufficient evidence to warrant citing the SS *Monrovia* for failing to slow to bare steerageway when the fog signal of the other vessel was heard and for failing to sound the danger signal. The Board's recommendation No. 5 in this connection is approved to the extent that the determination as to whether a penalty should be assessed and the amount thereof is a function of the District Commander having jurisdiction.

Recommendation No. 6 that the *Royalton* be cited for failing to give way when burdened in a crossing situation is disapproved for the reasons set forth in paragraph 3 above.

Subject to the foregoing remarks, the record of the Marine Board of Investigation is approved.

A. C. RICHMOND,
Vice Admiral, U.S. Coast Guard,
Commandant.

NEW MANUAL DISTRESS SIGNAL ADOPTED

THE COAST GUARD after its recent public hearing, adopted a manual distress signal for daytime use. The signal illustrated in the photographs above is made by *slowly* and *repeatedly* raising and lowering the arms outstretched to each side.

This signal was originally proposed to the Coast Guard by the Greater Tampa Chamber of Commerce in 1958, and has been in use in that area since that time. The signal has been adopted informally around the country by other boating groups. The purpose of this signal is to avoid those situations in which the boatman said: "I was in trouble and waved to other boats, and got nothing in return but a cheery wave back." This signal would also help the Coast Guard search and rescue units distinguish distress cases from friendly boat operators waving a greeting.

The signal adopted by the Council was kept as simple as possible in order that the boatman would be able to use it under all circumstances without requiring additional equipment. The visibility of this signal can be enhanced by holding in each hand a piece of cloth such as a handkerchief, towel, shirt, bathing suit, etc. If the boatman is thoughtful enough to carry two pieces of a "glow-type" fabric, the visibility would be even greater.

This signal is the first step toward a possible revision of the distress signals prescribed by law which would make them uniform on the waters of the United States, also make them applicable to the small pleasure craft as well as larger vessels.

MERCHANT MARINE STATISTICS

There were 958 vessels of 1,000 gross tons and over in the active oceangoing U.S. merchant fleet on May 1, 1960, 14 more than the number active on April 1, 1960, according to the Maritime Administration.

There were 36 Government-owned and 922 privately owned ships in active service. These figures did not include privately owned vessels temporarily inactive, or Government-owned vessels employed in loading grain for storage. They also exclude 26 vessels in the custody of the Departments of Defense, State, and Interior.

There was an increase of 14 active vessels and a decrease of 16 inactive vessels in the privately owned fleet. A tanker, the *Titan*, was delivered from construction. Two freighters were transferred to foreign flag, and a tanker was converted for inland service. This made a net loss of 2, or a total privately owned fleet of 1,014. Of the 92 privately owned inactive vessels, 35 dry cargo ships and 44 tankers were laid up for lack of employment, 14 fewer than on April 1. The others were undergoing repair or conversion.

The Maritime Administration's active fleet remained the same, while its inactive fleet decreased by 3. Eight reserve fleet ships were sold for scrap. One vessel was transferred to the Navy and one special type was removed from the reserve fleet. Seven Navy-owned ships were placed in reserve fleet custody. This made a net loss of 3 in the Administration's fleet, or a total of 2,038. The total U.S. merchant fleet decreased by 5 to 3,052.

No new ship construction orders were received during the month of April. One new tanker, a Great Lakes bulk carrier, and a hydrographic ship were delivered. The total of large merchant ships on order or under construction in U.S. shipyards dropped to 68, when a passenger ship and a container ship conversion were also completed.

Seafaring jobs on active oceangoing U.S.-flag ships of 1,000 gross tons and over, excluding civilian seamen manning Military Sea Transportation Service ships, were 48,575. Prospective officers in training in Federal and State nautical schools numbered 1,991.

INDIFFERENCE?

One of the prime factors in the repeated and sometimes appalling accounts of casualties reported to the Coast Guard has been the unbelievable indifference to obvious hazards. Sometimes this indifference is a reflection of inexperience or lack of knowledge, but the simple fact remains that some people give little consideration to exactly what they are doing or to the hazards involved. These points are exemplified in two casualties in which the people involved had either little or no experience, or were old hands at the game.

The first case involved three tyros who decided to enter the salvage business. They had contacted the owner of an uninspected salvage tug which had been laid up for sometime. They were told that the vessel was seaworthy, but admonished not to take the ship away from the dock until after the wharfage fees had been paid.

Despite warnings to the contrary and with little experience in boat handling, the neophytes took the vessel out for a trial run. At departure the sea was calm and the wind gentle, but 2 hours later the wind had increased sufficiently to cause some concern. The forward boom began to jackknife in heavy seas. The men attempted to secure it without success. No attempt was made to fix their position; nor had anyone thought it necessary to provide charts or compass.

Despite the presence of three bilge pumps which were put into use, water entered the hull faster than it could be pumped out. Eventually the propeller struck an object. Investigation indicated that a section of the keel was missing.

Flashing lights were visible, but could not be identified. Anchors were dropped, but the wires parted. Each time the vessel went down in the trough, she would hit bottom.

It was then that the men realized that the tug was aground and being pounded in the surf. One of the men swam ashore with a line and secured it to a tree. The lifejackets aboard were so deteriorated that they split in half. Each man had to don two jackets to approximate one. The flares were wet and could not be used.

The men were able to make it ashore safely and were picked up by a fishing boat the following morning. The whole after section of the tug had sunk below the waterline—a total loss. Fortunately, there was no loss of life.

The second casualty involved a more experienced group. Repairs were being made to the engine reduction gear of a fishing boat tied to a dock. The tail shaft was disconnected from the engine. A large tug moored ahead was warming her engines. The wheel water wash from the tug's propeller caused the propeller to pull out of the stuffing box. Water entered the stern tube and the vessel sank. It was not a total loss, but a few people were rather embarrassed.

Both these casualties could have been avoided had the parties involved given some forethought to what they were doing.

COAST GUARD LIGHT LISTS AND MARINE AIDS

The 1960 editions of the Coast Guard List of Lights and Other Marine Aids now are available to the public. The following publications may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., or from his sales agents located in the principal ports for the prices indicated:

ATLANTIC AND GULF COASTS, 1960 EDITIONS

Volume I, 1st Coast Guard District, from St. Croix River, Maine, to Watch Hill, R.I., Price $1.50.

Volume II, 3d Coast Guard District, from Watch Hill, R.I., to Fenwick Island, Del., price $1.50.

Volume III, 5th Coast Guard District, from Fenwick Island, Del., to Little River inlet, S.C., price $1.75.

Volume IV, 7th Coast Guard District, from Little River Inlet, S.C., Apalachicola River, Fla., and the U.S. West Indies, price $1.75.

Volume V, 8th Coast Guard District, from Apalachicola River, Fla., to Rio Grande, price $1.75.

Volumes I–V (combined). Complete List of Lights and Other Marine Aids, Atlantic Coast, price $5.50. This volume is a composite list of volumes I to V, inclusive, with suitable cross-references to facilitate its use by navigators operating in more than one Coast Guard District.

PACIFIC COAST, 1960 EDITIONS

Volume 1, 11th Coast Guard District, from Mexican border to Point Arguello, Calif., price $0.70.

Volume II, 12th Coast Guard District, from Point Arguello, Calif., to St. George Reef, Calif., price $0.70.

Volume III, 13th Coast Guard District, from St. George Reef, Calif., to Alaska, price $1.25.

Volume IV, 17th Coast Guard District, Alaska, price $0.75.

Volume V, 14th Coast Guard District, Hawaiian and Pacific Islands, price $0.70.

Volumes I–V (combined), List of Lights and Other Marine Aids, covering the Pacific Coast and Islands, price $2. This volume is a composite list of volumes I to V, inclusive, with suitable cross-references to facilitate its use by navigators operating in more than one Coast Guard District.

GREAT LAKES, 1960 EDITION

List of Lights and Other Marine Aids, Great Lakes, United States and Canada, price $1.75.

MISSISSIPPI RIVER SYSTEM, 1960 EDITION

List of Lights and Other Marine Aids, Mississippi River System, price $1.75.

UNITED STATES COAST GUARD

ADDRESS REPLY TO:
COMMANDANT
U.S. COAST GUARD
HEADQUARTERS
WASHINGTON 25, D.C.

MVI
13 April 1960

Commandant's Action

on

Marine Board of Investigation; casualty to the tug *J. H. Revels* and *McDermott Spud Barge No. 4* resulting from the explosion of the Union Oil Co. well No. 23, Timbalier Bay, La., 1 August 1959, with loss of life

The record of the Marine Board of Investigation convened to investigate subject casualty, together with its findings of fact, conclusions, and recommendations, has been reviewed.

On the evening of 1 August 1959 the uninspected towing vessel MV *J. H. Revels* and the uninspected spud barge *McDermott Spud Barge No. 4* were involved in a flash fire while attempting to salvage a drilling barge which was in position at Union Oil Co. of California well No. 23 in Timbalier Bay, La. At the time of the casualty the well was blowing water and gas. As a result of the fire, eight of the nine persons aboard the two vessels were burned, three fatally. Damage to the tug was negligible. The barge suffered fire damage estimated at $7,000.

Pursuant to orders from the McDermott dispatcher, the MV *J. H. Revels* with the *McDermott Spud Barge No. 4* in tow proceeded to the Union Oil Co. well No. 23 in Timbalier Bay, arriving on the morning of 1 August 1959. The tow stood by in the area until late afternoon when an independent surveyor engaged by the insurers of the drilling barge arrived on the scene and conferred with the captain of the *McDermott Spud Barge No. 4* as to possible means of salvaging the drilling barge and the equipment on it. After rejecting several possibilities it was agreed that the best course would be to pass the dragline from the spud barge onto the drilling barge and for the spud barge to spud-down and take a strain, thereby acting as an anchor to prevent further listing of the drilling barge until other more suitable equipment became available to assist in the salvage. The dragline was made fast on the drilling barge and the spud barge, with the tug alongside the starboard quarter, was positioned approximately 150′ directly astern of the drilling barge. The spuds were then lowered and a strain was taken on the dragline. At approximately 7 p.m. the wind increased and shifted from the southwest to the northwest at the approach of a squall. This resulted in gas and water from the well being blown across the tug and spud barge. On orders from the barge captain the spuds were raised and the tow was moved ahead to slacken the cable in order to let go and move away from the rig. The barge captain was standing on the forward starboard corner of the barge giving signals to the spud operator. He was in this position when fire appeared to flash in his face and spread almost instantly from the spud barge and the tug toward the drilling barge. After the initial flash, the fire was confined to the drilling barge.

When the fire occurred, all of the persons on both the *McDermott Spud Barge No. 4* and the tug *J. H. Revels* jumped overboard; however, before doing so the spud operator dropped the spuds to prevent the tow from moving closer to the drilling barge. The master of the tug, though seriously burned, climbed back aboard his vessel and after pulling two survivors from the water, cast the tug off and backed away from the danger area. The other three survivors were rescued by commercial craft on the scene.

REMARKS

The Board's conclusion that the ignition of the vapor from the blowing well was caused by the barge captain lighting a cigarette is adequately supported in the record and is considered the most probable cause of this casualty even though other possible sources of ignition, such as the spud winch engine, electrical equipment, etc., were present. One witness testified that the fire occurred when the barge captain lit up a cigarette and others stated that they observed the barge captain raise cupped hands to his face and saw the fire begin directly in front of him at that instant. In view of testimony that the barge captain had cautioned some crewmembers against smoking and had picked up matches belonging to others, there can be little doubt that he was fully aware of the hazard. Since he was one of those who died it can only be presumed that the lighting of the cigarette at the time was the unconscious act of an habitual smoker.

Since the vessels involved were not subject to inspection by the Coast Guard and there was no evidence of violation of any Federal law, no further action is indicated.

Subject to the foregoing remarks, the record of the Marine Board of Investigation is approved.

A. C. RICHMOND,
Vice Admiral, U.S. Coast Guard,
Commandant.

[EDITOR'S NOTE.—The material contained herein has been condensed due to space limitations. Copies of the Federal Registers containing the material referred to may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C.]

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

[CGFR 60-31]

SUBCHAPTER B—MERCHANT MARINE OFFICERS AND SEAMEN

PART 12—CERTIFICATE OF SEAMEN

SUBCHAPTER H—PASSENGER VESSELS

PART 74—STABILITY

Commitment of Employment and Stability Standards for Passenger Vessels of Unusual Designs

Pursuant to the notice of proposed rule making published in the Federal Register on February 18, 1960 (25 F.R. 1440-1448), and Merchant Marine Council Public Hearing Agenda dated April 4, 1960 (CG-249), the Merchant Marine Council held a Public Hearing on April 4, 1960, for the purpose of receiving comments, views and data. The proposals considered were identified as Items I through XII, inclusive, and Item XII contained proposed requirements regarding commitment of employment as a prerequisite in obtaining a Merchant Mariners' Document and stability requirements for passenger vessels of unusual designs. The proposal with respect to renewal of masters', mates', or pilots' licenses is under consideration and will be the subject of a separate document.

This document is the second of a series covering the regulations and actions considered at the April 4, 1960 Public Hearing and annual session of the Merchant Marine Council. The first document, CGFR 60-30, contains the requirements based on Item I regarding radar observers required on radar equipped vessels.

[CGFR 60-27]

SUBCHAPTER I—CARGO AND MISCELLANEOUS VESSELS

PART 92—CONSTRUCTION AND ARRANGEMENT

SUBCHAPTER K—MARINE INVESTIGATIONS AND SUSPENSION AND REVOCATION PROCEEDINGS

PART 136—MARINE INVESTIGATION REGULATIONS

Guard Rails Required on Cargo Vessels and Marine Casualty Investigations

SUBCHAPTER P—MANNING OF VESSELS

[CGFR 60-30]

PART 157—MANNING REQUIREMENTS

Radar Observers Required

Pursuant to the notice of proposed rule making published in the Federal Register on February 18, 1960 (25 F.R. 1440-1448), and Merchant Marine Council Public Hearing Agenda dated April 4, 1960 (CG-249), the Merchant Marine Council held a hearing on April 4, 1960, for the purpose of receiving comments, views and data. The proposals considered were identified as Items I through XII, inclusive, and Item I contained proposed requirements regarding the manning of radar equipped vessels.

This document is the first of a series covering the regulations and actions considered at the April 4, 1960 Public Hearing and annual session of the Merchant Marine Council.

This document contains the final actions taken with respect to Item I regarding manning of radar equipped vessels. On the basis of the information received and comments made changes were made in the regulation designated 46 CFR 157.20-32 so that the effective date will be May 1, 1962, rather than January 1, 1961, and to clarify that it applies to the required complement of deck officers specified in the certificate of inspection. The proposal as set forth in Item I, as revised, is adopted and included in this document.

(Federal Register of May 6, 1960)

Courtesy Safety Bulletin

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

SUBCHAPTER I—CARGO AND MISCELLANEOUS VESSELS

[CGFR 60-32]

PART 97—OPERATIONS

Stowage of Bulk Ore Cargoes

Pursuant to the notice of proposed rule making published in the Federal Register on February 18, 1960 (25 F.R. 1440-1448), and Merchant Marine Council Public Hearing Agenda dated April 4, 1960 (CG-249), the Merchant Marine Council held a Public Hearing on April 4, 1960, for the purpose of receiving comments, views and data. The proposals considered were identified as Items I through XII, inclusive, and Item X contained proposed requirements regarding the stowage of bulk ore cargoes.

This document is the third of a series covering the regulations and actions considered at the April 4, 1960 Public Hearing and annual session of the Merchant Marine Council. The first document, CGFR 60-30, contains the requirements based on Item I regarding radar observers required on radar equipped vessels. The second document, CGFR 60-31, contains the requirements based on Item XII regarding commitment of employment and stability standards for passenger vessels of unusual designs.

This document contains the final actions taken with respect to Item X regarding stowage of bulk ore cargoes. No changes were made in the text of the proposals, as set forth in Item X which are adopted and included in this document.

(Federal Register of May 12, 1960)

NAVIGATION AND VESSEL INSPECTION CIRCULAR No. 2–60

March 31, 1960

Subj: Renewal of Fusible Plugs in Fire Tube Boilers; change in report procedure.

1. *Purpose.* To advise chief engineers and other interested parties of a change in the regulations concerning the reporting of fusible plug renewals.

2. *Discussion.* The submission of a report describing the fusible plugs inserted as replacements for defective plugs in boilers is not considered necessary when a Coast Guard inspector is in attendance on the vessel as during an inspection for certification or during repairs. Accordingly, the pertinent vessel inspection regulations (46 CFR 2.20–40(c) and 61.45–20) have been amended to remove the requirement for the submission of Form CG 945, Report of Chief Engineer on Fusible Plugs Inserted in Boiler.

When the fusible plugs are renewed and no Coast Guard inspector is in attendance, however, a report by the Chief Engineer to the Coast Guard is still necessary. Since these occasions are expected to be infrequent the use of Form CG 945 is being discontinued and the report will be made by letter. The content of the letter is described in new regulations. In this connection subparagraph 52.70–40(j)(2) of the Marine Engineering Regulations (CG 115) for vessels built after 1935 and subparagraph 67.50–20(c)(2) of the Rules and Regulations for Marine Engineering Installations Contracted for Prior to July 1, 1935 (CG 270) have been revised to read as follows:

When fusible plugs are renewed at other than the inspection for certification and no marine inspector is in attendance, the chief engineer shall submit a written report to the Officer in Charge, Marine Inspection, who issued the Certificate of Inspection informing him of the renewal. This letter report shall contain the following information:

(i) Name and official number of vessel.

(ii) Date of renewal of fusible plugs.

(iii) Number and location of fusible plugs renewed in each boiler.

(iv) Manufacturer and heat number of each plug.

(v) Reason for renewal.

The changes to the regulations described herein were published in the Federal Register on 17 March 1960 and are now effective.

3. *Action.* Beginning immediately the use of Form CG 945, Report of Chief Engineer on Fusible Plugs Inserted in Boiler, will be discontinued and all blank forms now held should be destroyed. When fusible plugs are inserted in boilers and no Coast Guard inspector is in attendance, the Chief Engineer shall submit a letter to the Coast Guard as described in the regulation quoted above. When fusible plugs are inserted in boilers and a Coast Guard inspector is in attendance the renewals shall be called to his attention so that he may ascertain that approved plugs have been used and enter the necessary data in his inspection records.

H. T. JEWELL
Rear Admiral, USCG
Chief, Office of Merchant Marine Safety
By direction of the Commandant

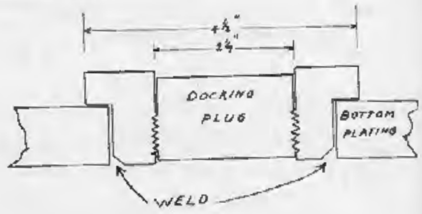
NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 3–60

April 26, 1960

Subj: Docking plug rings, examination of welding of when vessels are in drydock.

1. *Purpose.* To call attention to the need for examining welded docking plug rings when vessels are in drydock.

2. *Discussion.* Several casualties investigated by the Coast Guard recently have been due to flooding caused by wastage of the welding which secures the docking plug rings of steel vessels. The vessels involved were partially flooded and subjected to diversion and emergency repairs at considerable expense to the owners. This occurred on vessels of the C–2 and C–3–P classes and very likely resulted from the plugs being hidden by the keel blocks over several inspections and thereby not having been observed.



DOCKING PLUG ASSEMBLY

3. *Action.* Where it is known that such docking plugs are fitted, owners, operators, and marine inspectors should make sure that they are sighted when the vessel is in drydock. Blocks should be shifted if necessary, and proper repairs made where indicated.

H. T. JEWELL,
Rear Admiral, USCG,
Chief, Office of Merchant Marine Safety.
By direction of the Commandant.

ARTICLES OF SHIPS' STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from 1 May to 31 May 1960, inclusive, for use on board vessels in accordance with the provisions of part 147 of the regulations governing "Explosives or Other Dangerous Articles on Board Vessels," are as follows:

CERTIFIED

The American Lubricants Co., 1227 Deeds Ave., Post Office Box 676, Dayton 1, Ohio, Certificate No. 349, dated 5 May 1960, BIXON NO. 1800.

The Tiffany Co., 1227 Deeds Ave., Dayton 1, Ohio, Certificate No. 371, dated 6 May 1960, T–A–P.

ACCEPTABLE HYDRAULIC ALUMINUM ALLOY VALVES

Hydraulic aluminum alloy valves which have passed high-impact shock tests and accepted under the provisions of 46 CFR 51.01–85, 55.07–1(j), and 55.07–1(e)(3):

Manufacturer	Valve type	Identity	Dwg. No.
Walz & Krenzer, Inc., 22 Flint Street, Rochester 8, N.Y.	Relief, check and shuttle (aluminum alloy)	Series 471	B–WK–471–T.

Reslabs, Inc., 2155 West 80th St., Chicago 20, Ill., Certificate No. 427, dated 17 May 1960, NO. 210 HEAVY DUTY CLEANER or NO. 105 HEAVY DUTY CLEANER.

The C. B. Dolge Co., Westport, Conn., Certificate No. 428, dated 27 May 1960, NOFALS.

Applied Consultants, 1563 Choctaw Drive, Baton Rouge, La., Certificate No. 431, dated 17 May 1960, NO. 66 SEA WASH.

AFFIDAVITS

The following affidavits were accepted during the period from 15 April 1960 to 15 May 1960:

Hallstead Foundry Inc., Hallstead, Pa., CASTINGS.

Ladish Co.,[1] Hasco Div., 1263 North 70th St., Milwaukee 13, Wis., VALVES.

Scovill Mfg. Co.,[2] Waterbury 20, Conn., NONFERROUS PIPE AND TUBING.

The Falls Machine Co., Post Office Box 6126, Akron 12, Ohio, BOLTING.

Exeter Brass Co., Inc., Exeter, N.H., CASTINGS.

Richmond Engineering Co., Inc., 7th and Hospital Sts., Richmond, Va., FITTINGS.

Greer Hydraulics, Inc., New York International Airport, Jamaica 30, N.Y., VALVES.

[1] Additional listing. Ladish Co. is currently listed for fittings, flanges, and forgings.

[2] Additional listings. Scovill Mfg. Co. is currently listed for fittings.

NOTICE

It is now possible to keep your Coast Guard publications up to date by using the column entitled "Marine Safety Publications and Pamphlets" as a ready reference. Following the title of each publication are the dates of the Federal Registers which amend it. With the use of the proper Federal Register, each pamphlet can be kept up to date until a new issue is available.

Changes Published During May 1960

The following publications have been modified by Federal Register:

CG 191, 200, 256, 257, 267, and 268 Federal Register, May 6, 1960 (25 cents).

CG 267 Federal Register, May 11, 1960.

CG 257 Federal Register, May 12, 1960.

CG 169, 172 and 184 Federal Register, May 20, 1960.

MARINE SAFETY PUBLICATIONS AND PAMPHLETS

The following publications and pamphlets are available and may be obtained upon request from the nearest Marine Inspection Office of the United States Coast Guard. The date of each publication is indicated in parenthesis following its title. The dates of the Federal Registers affecting each publication are noted after the date of each edition.

CG No.	Title of Publication
101	Specimen Examinations for Merchant Marine Deck Officers (7–1–58).
108	Rules and Regulations for Military Explosives and Hazardous Munitions (8–1–58).
115	Marine Engineering Regulations and Material Specifications (3–1–58). F.R. 5–10–58, 4–25–59, 9–5–59, 3–17–60.
123	Rules and Regulations for Tank Vessels (12–1–59). F.R. 3–30–60.
129	Proceedings of the Merchant Marine Council (Monthly).
169	Rules of the Road—International—Inland (5–1–59). F.R. 5–21–59, 6–6–59, 5–20–60.
172	Rules of the Road—Great Lakes (5–1–59). (F.R. 6–1–59, 1–7–60, 3–17–60, 5–20–60.
174	A Manual for the Safe Handling of Inflammable and Combustible Liquids (7–2–51).
175	Manual for Lifeboatmen and Able Seamen, Qualified Members of Engine Department, and Tankerman (6–1–55).
176	Load Line Regulations (9–2–58). F.R. 9–5–59.
182	Specimen Examinations for Merchant Marine Engineer Licenses (12–1–59).
184	Rules of the Road—Western Rivers (5–1–59). F.R. 6–1–59, 6–6–59, 5–20–60.
190	Equipment Lists (4–1–58). F.R. 6–3–58, 7–4–58, 9–27–58, 12–31–58, 3–14–59, 6–20–59, 7–28–59, 9–3–59, 12–17–59, 3–16–60.
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel (5–1–59). F.R. 5–26–59, 6–20–59, 7–21–59, 8–15–59, 9–5–59, 1–8–60, 3–17–60, 3–30–60, 5–6–60.
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (7–1–58). F.R. 3–30–60, 5–6–60.
220	Specimen Examination Questions for Licenses as Master, Mate, and Pilot of Central Western Rivers Vessels (4–1–57).
227	Laws Governing Marine Inspection (7–3–50).
239	Security of Vessels and Waterfront Facilities (7–1–58). F.R. 11–1–58, 12–18–58, 12–30–58, 9–19–59, 2–24–60, 3–30–60.
249	Merchant Marine Council Public Hearing Agenda (Annually).
256	Rules and Regulations for Passenger Vessels (3–2–59). F.R. 4–25–59, 6–18–59, 6–20–59, 7–9–59, 7–21–59, 9–5–59, 1–8–60, 5–6–60.
257	Rules and Regulations for Cargo and Miscellaneous Vessels (3–2–59). F.R. 4–25–59, 6–18–59, 6–20–59, 7–9–59, 7–21–59, 9–5–59, 5–6–60, 5–12–60.
258	Rules and Regulations for Uninspected Vessels (9–1–59). F.R. 3–17–60.
259	Electrical Engineering Regulations (9–2–58). F.R. 6–20–59, 7–21–59, 9–5–59, 1–8–60.
266	Rules and Regulations for Bulk Grain Cargoes (5–1–59).
267	Rules and Regulations for the Numbering of Undocumented Vessels and the Reporting of Boating Accidents (5–1–59). F.R. 7–11–59, 7–18–59, 7–25–59, 9–5–59, 9–17–59, 10–2–59, 10–23–59, 11–19–59, 11–21–59, 12–5–59, 12–29–59, 1–1–60, 1–30–60, 2–13–60, 3–4–60, 3–17–60, 3–18–60, 4–6–60, 4–14–60, 4–20–60, 5–6–60, 5–11–60.
268	Rules and Regulations for Manning of Vessels (10–2–59). F.R. 12–18–59, 3–17–60, 5–6–60.
269	Rules and Regulations for Nautical Schools (3–1–60). F.R. 3–30–60.
270	Rules and Regulations for Marine Engineering Installations Contracted for Prior to July 1, 1935 (11–19–52). F.R. 12–5–53, 12–28–55, 6–20–59, 3–17–60.
290	Pleasure Craft (7–1–59).
293	Miscellaneous Electrical Equipment List (3–7–60).
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf (10–1–59).
323	Rules and Regulations for Small Passenger Vessels (Not More Than 65 Feet in Length) (6–1–58). F.R. 6–28–58, 11–19–58, 1–6–59, 5–26–59, 6–18–59, 6–20–59, 7–21–59, 9–5–59, 1–8–60.
329	Fire Fighting Manual for Tank Vessels (4–1–58).

Official changes in rules and regulations are published in the Federal Register, which is printed daily except Sunday, Monday and days following holidays. The Federal Register is a sales publication and may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. It is furnished by mail to subscribers for $1.50 per month or $15 per year, payable in advance. Individual copies desired may be purchased as long as they are available. The charge for individual copies of the Federal Register varies in proportion to the size of the issue and will be 15 cents unless otherwise noted on the table of changes.

U.S. GOVERNMENT PRINTING OFFICE: 1960