



# *PROCEEDINGS*

OF THE MERCHANT MARINE COUNCIL



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# PROCEEDINGS

## OF THE MERCHANT MARINE COUNCIL

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THE TOWBOAT *Esso Pennsylvania* shown underway shortly after her completion last year. Part of the fast growing inland-waterways fleet, the vessel, when pushing an eight-barge integrated tow, transports 17,000 to 180,000 barrel oil cargoes between Baton Rouge and Pittsburgh.

THIS COPY FOR NOT LESS THAN 20 READERS—PASS IT ALONG

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### FRONT COVER

Jack and the Bean Stalk—the St. Johns Light Station radiobeacon tower appears to reach through the clouds, although in actuality the Mayport, Fla., installation is only 110 feet above terrain.

### BACK COVER

The sad safety history of Stanislaus Peck, by G. Seal

### DIST. (SDL NO. 76)

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# SUMMARY OF MERCHANT MARINE COUNCIL PUBLIC HEARING HELD 25 MARCH 1963, AT WASHINGTON, D.C.

The proposals considered were—

1. SMALL PASSENGER VESSELS UNDER 100 GROSS TONS.
2. UNINSPECTED VESSELS (MOTOR-BOATS).
3. MERCHANT MARINE OFFICERS' EXAMINATIONS.
4. TANK VESSELS.
5. VESSEL OPERATIONS AND INSPECTIONS.
6. MARINE ENGINEERING.
7. ELECTRICAL ENGINEERING.
8. DANGEROUS CARGOES.
9. ARTIFICIAL ISLANDS AND FIXED STRUCTURES ON THE OUTER CONTINENTAL SHELF.
10. RULES OF THE ROAD.
11. TRANSPORTATION AS "BULK" OR AS "PACKAGES" OF FLAMMABLE OR COMBUSTIBLE LIQUIDS AND COMPRESSED GASES.

The Merchant Marine Council accepted most of the proposed changes to the regulations, with certain changes from the agenda which reflect actions taken with respect to comments received. Items 3 and 9 were accepted without change. Because of the number of comments received or questions raised with respect to certain proposals in the other items, the Merchant Marine Council recommended final actions be deferred to permit further study of such proposals and comments. The changes in the regulations will be published in the Federal Register as soon as possible.

The proposals regarding small passenger vessels in item 1 were accepted in substance. Minor changes in proposals for those vessels over 65 feet in length and under 100 gross tons were accepted. The principal changes were: (1) Continued requirement for rescue boats unless Officer in Charge, Marine Inspection, determines such boat is unnecessary in specific situations; and (2) continued requirement for power fire pump to be fitted with a pressure gage and to be capable of maintaining a capacity of not less than 50 gallons per minute at a pressure of not less than 60 pounds per square inch at the pump outlet.

The proposals regarding uninspected vessels (motorboats) in item 2 were accepted; however, final action with respect to the specification for the backfire flame arrester for carburetors was deferred until all the comments could be reviewed and problems resolved.

The proposals regarding bulk shipments of ethylene oxide and liquefied inflammable gases in item 4 (tank vessels), and the special construction, arrangement, and provisions for certain dangerous cargoes in bulk on

barges in item 5, were commented on extensively. Therefore, final actions on these proposals were deferred until all the comments could be studied and indicated problem areas satisfactorily resolved. The proposal regarding ring life buoys for unmanned inspected barges was intended to clarify the existing requirements and many comments received objected to requiring ring life buoys on barges. Final action was deferred pending a further review of existing requirements, the proposal and comments received and establishment of a uniform position with respect to the various types of unmanned barges now in use. The other proposals in items 4 and 5 were accepted with minor changes based on comments received.

The proposals regarding marine and electrical engineering in items 6 and 7 were accepted with minor changes based on comments received.

As announced at the public hearing, the final actions with respect to the proposals regarding "poisonous articles—radioactive materials" in item 8 were deferred so that the requirements of the Interstate Commerce Commission and the Coast Guard will be in agreement when published. It was noted that the ICC notice of proposed rulemaking on this subject will be published in the near future. The Atomic Energy Commission also requested postponement of final action until the proposed ICC regulations on radioactive materials can be reviewed and identical comments made concerning identical proposals. The text of all comments received by the Coast Guard will be made available to the ICC. The other proposals in item 8 were accepted with minor changes based on comments received. With respect to castor beans and castor pomace, these materials will have to be regulated; however, final action was temporarily deferred until certain questions raised could be resolved and the feasibility of alternate suggestions determined.

A number of comments pointed out serious objections to the proposals concerning lights for moored barges in item 10. Therefore, the final actions on these proposals will be taken in a piecemeal manner as the questions raised are satisfactorily resolved. The Western Rivers Rules of the Road will be revised first to permit barges on the Mississippi River above Cairo, Ill., and rivers above that point which are tributary thereto to use the proposed rule changes.

The proposals regarding regattas and marine parades in item 10 were

accepted with minor changes. A number of comments objected to the proposals permitting States to regulate any regattas. This is presently permitted and several States now perform this work. This practice will be continued.

A number of comments were received concerning the transportation of inflammable or combustible liquids and compressed gases, and the proposals regarding these commodities in item 11. Certain comments raised questions concerning requirements applicable if these commodities are carried on board cargo vessels or barges in portable containers or tank trucks approved by the ICC and considered to be in quantities coming within the interpretation of a "bulk" shipment and therefore subject to the tanker act (46 U.S.C. 391a). Final actions on these proposals were postponed until the comments and views can be resolved and the corollary problems raised concerning inspection certificate limitations or endorsements can be reviewed by a special committee.

## THE MERCHANT MARINE COUNCIL

Numerous Federal laws pertaining to maritime safety prescribe that the Commandant, U.S. Coast Guard, shall promulgate regulations to implement those laws. Included are those laws which govern the construction, inspection, manning, equipment, and operation of certain commercial vessels; the equipment, operation, and numbering of certain other craft; the rules of the nautical road; also the safety requirements relative to offshore drilling platforms, rigs, and associated vessels.

To advise and assist the Commandant in meeting these responsibilities a "Merchant Marine Council" was first established in 1942.

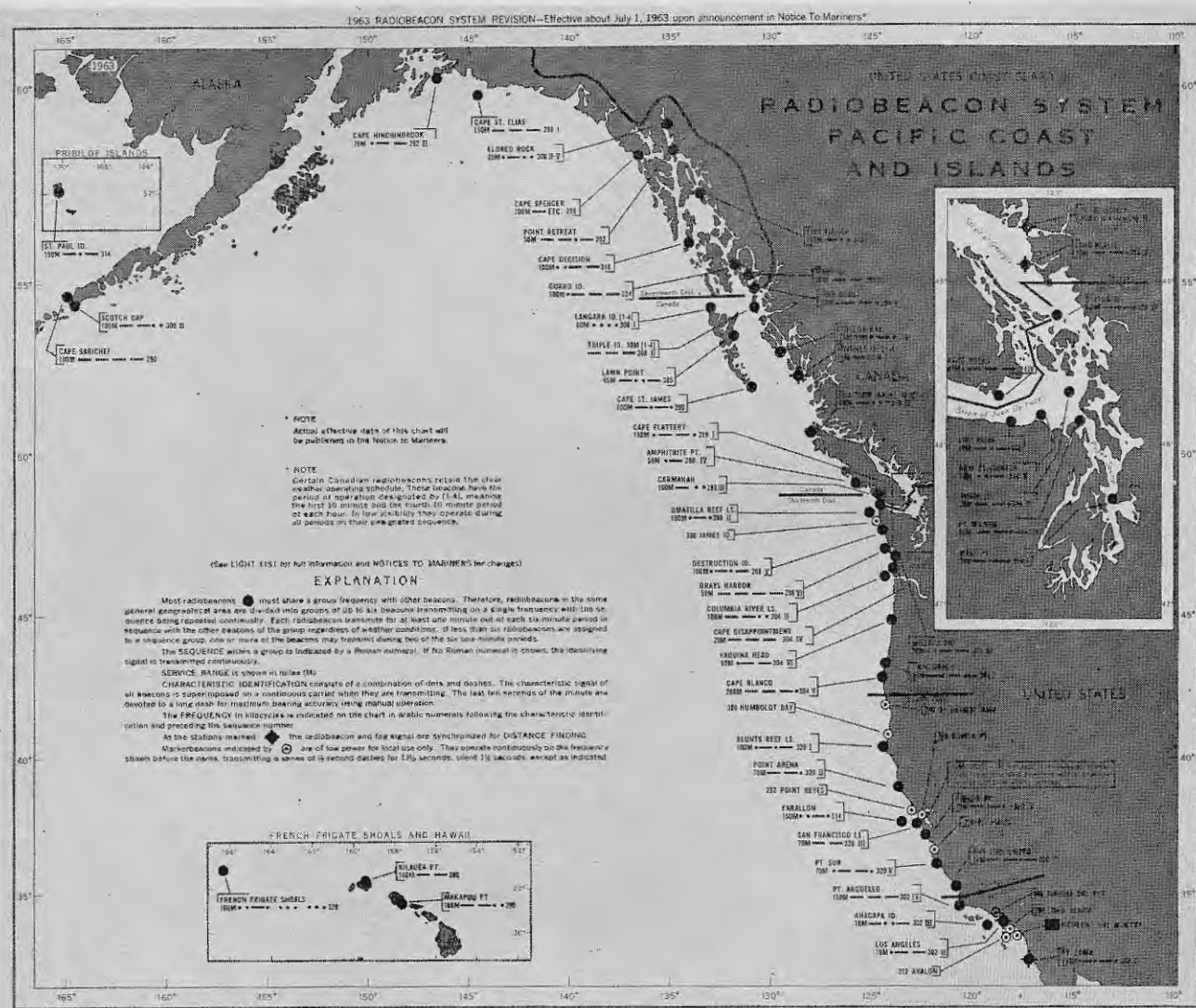
The Merchant Marine Council is a deliberative body to advise the Commandant as to policy in connection with matters affecting maritime safety. It has no operating authority. The Council makes recommendations to the Commandant on proposed legislation, rules, and regulations governing the construction, navigation, inspection, equipment, manning and operating of certain privately owned vessels; the rules of the nautical road; and the safety requirements applicable to offshore drilling rigs, platforms, and associated vessels. The Council provides a forum where maritime safety problems may be considered informally.

1962 RADIOBEACON SYSTEM REVISION—Effective about June 1, 1963 upon announcement in Notice to Mariners

June 1963



# BEACON SYSTEM



this rotation took place only during two 10-minute intervals 20 minutes apart.

One of the difficulties of this method of operation was that during clear weather when a vessel wanted a radiobeacon fix, it seemed to invariably be at the time when the desired beacons were silent. Another difficulty was that during poor visibility more beacons were in operation than there were in clear weather. This increase in the number of beacons operating resulted in overcrowding of available frequencies with the possibility of interference and hence inaccurate bearings.

A revision of the radiobeacon system to be completed this month on the Atlantic and gulf coasts, and next month on the Pacific coast, is designed to correct these undesirable aspects of the system and to improve the radiobeacon service provided the mariner.

Briefly, the revision is the time sharing of a frequency by six radiobeacons instead of three; the elimination of the 20-minute period of silence in clear weather; the adjustment of service ranges; the addition of a 10-second dash in the characteristic identifier and the superimposing of the characteristic on a continuous

carrier. The following paragraphs describe these changes in greater detail.

With the operating schedule of 1 minute on and 5 minutes off, twice as many beacons can be grouped on a single frequency. This more efficient use of available frequencies allows wider separation of adjacent frequency groups. This wider separation reduces the probability of interference. Where feasible, adjacent radiobeacons have been assigned to the same frequency and operate on consecutive minutes. This method of operation was not practicable in all cases because of

varying service ranges of the radio-beacons and the characteristics of the coastline.

Radiobeacon ranges have been reviewed primarily for the purpose of reducing the range of those beacons which extended far beyond the range actually required for safe navigation. A radiobeacon is basically a short- to medium-range (of 50 to 100 miles) aid. Radiobeacon bearings taken beyond this range have positional inaccuracies of greater than 5 miles. At ranges of about 120 miles the positional error is likely to exceed 7 miles. It will be noticed that even though the range of many radiobeacons is 50 miles or less, there are still a number of beacons operating at a range of 100 miles or greater. The real marine navigational requirement for these long ranges is questionable. They have been allowed to continue to operate at these ranges for two reasons: (a) Some of these fulfill air navigational requirements and are integrated into the FAA system of beacons, thus necessitating longer ranges; (b) are specific marine requirements; and (c) they provide some "comfort" to a navigator homing on the beacon. These long ranges will be maintained as long as possible; however, the ever-increasing need for more beacons will result in a periodic review of these beacon ranges and possibly a gradual reduction in their ranges.

The following will illustrate the problem faced by the radiobeacon system planner. Two beacons with a service range of 20 miles are able to operate the same minute on the same frequency without harmful interference, if the distance between them is 244 miles. Two 150-mile beacons would have to be 655 miles apart, and two 350-mile beacons would require a distance of 1,125 miles between them. It can be seen that if the necessary number of radiobeacons are to be accommodated within the frequency band 285 to 325 kc/s, service ranges must be kept to the absolute minimum required to meet the needs of the mariner.

In order to make the use of radiobeacons as simple as possible, the characteristics assigned to radiobeacon stations in this country have been limited to a brief and simple combination of dots and dashes. They are thus identified on the same principle as our lights along the coast. Now, a 10-second dash is being added to the characteristic of beacons to permit the navigator to refine his bearing. In addition, the identifying signal of all beacons has been super-

imposed on a continuous carrier, when they are transmitting, to facilitate their use by navigators using automatic direction finders.

The entire transmission for most time-sharing stations is a repetition of the assigned signal for 50 seconds followed by a 10-second dash. There is a minor variation to this in the case of distance-finding stations. These stations transmit their assigned signal for 48 seconds, followed by 2 seconds of silence and then a 10-second dash.

Distance-finding stations are equipped so that a mariner, within the range of the fog signal and having a radio receiver, can determine his distance from the station. The 10-second radio dash and the long blast of the fog signal may be used for this purpose. The 10-second radio dash and the long (5-second) blast of the fog signal commence at the same instant. Since the radio signals arrive practically instantaneously (speed 186,000 miles/second), the later arrival of the sound signal (speed approximately 1,100 feet/second) gives an indication of the distance traversed by the latter, thereby indicating the vessel's distance from the station. The elapsed time for the distance computation is obtained by starting a stopwatch the instant the 10-second radio dash is heard (it is preceded by 2 seconds of silence), and stopping it when the long blast of the fog signal is heard (it is preceded by a 1-second blast). Dividing the elapsed time by 5.5 gives the distance in nautical miles with an error that should not exceed +10 percent. As this method depends on hearing a sound-in-air signal, it is subject to the same uncertainties that affect fog signals. Cautionary notes concerning both radiobeacons and fog signals are printed in the Coast Guard's List of Lights and Other Marine Aids.

It would be convenient to the navigator to have all radiobeacons send continuously without any silences, thus making these aids to navigation always available as are lighthouses and buoys. The revised system is a compromise; it allows for the maximum beacon on air time and yet keeps interference at a minimum. Some beacons are, however, operated continuously. These beacons are required to meet specific marine or aeronautical needs and are located in areas where the number of beacons is not so great as to preclude this method of operation.

In addition to time sharing (sequenced) and continuously operating it can be seen that radiobeacons are

shown on the accompanying chartlets. It can be seen that radio beacons are located at all important entrances and at outstanding intermediate points along the coasts. Marker beacons are radiobeacons of low power for local use only and are located on sites where, for various reasons, the installation of a sequenced beacon would not be practical. The characteristic of marker beacons is a series of  $\frac{1}{2}$ -second dashes for  $13\frac{1}{2}$  seconds, silent  $1\frac{1}{2}$  seconds, repeated continually. Station identification is achieved by noting the assigned frequency on the chartlet and on the receiver dial.

The changes being made to the radiobeacon system will be made to approximately one-half of the radiobeacons on the Atlantic and gulf coasts on June 4, 1963, with the remaining beacons on these coasts being changed on June 11, 1963. Weekly Notice to Mariners No. 7 dated February 16, 1963, listed the changes to be made with the effective dates and contained a chartlet. This chartlet shows the system as it will be operating on June 12, 1963, except that the Canadian radiobeacons at Partridge Island, Lurcher Shoal L/V and Seal Island will operate on 308 kc/s, sequence II, V, and VI, respectively. The revised system is also shown on the June issue, Pilot Chart No. 1400 of the North Atlantic Ocean.

The changes to those beacons located on the Pacific coast will be made on July 9 and July 16, 1963. Weekly Notice to Mariners No. 18 dated May 4, 1963, contained the information concerning the Pacific changes and Weekly Notice to Mariners No. 20 contains a chartlet depicting the changes. The revised system will also be shown on the July issue, Pilot Chart No. 1401 of the North Pacific Ocean.

Since radiobeacons in the same general area are operating on the same frequency around the clock, time-sharing beacons cannot operate at any time other than their assigned minute without causing interference. Therefore, these beacons cannot transmit continuously for direction-finder calibration. Special calibration stations are located along each coast. These stations transmit on a frequency in the marine band, and on 480 kc/s, to allow for the calibration of direction finders. For complete details on these stations, consult the appropriate volume of the List of Lights and Other Marine Aids.

For information on accuracy of bearings, plotting, and other matters, the navigator should consult the current issue of H.O. Publication No. 117, "Radio Navigational Aids."





# MARITIME SIDELIGHTS

The first research vessel, the R. V. *Atlantis II*, built in the Baltimore area, has been accepted by the Woods Hole (Mass.) Oceanographic Institution.

She was built by the Maryland Shipbuilding & Drydock Co., under a grant from the National Academy of Sciences.

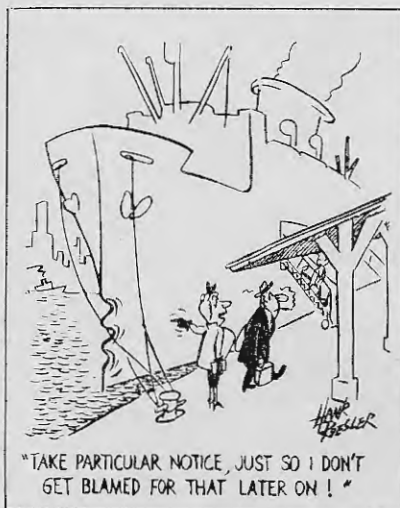


Bids on a 540 foot, 22,000-ton roll-on-roll-off vehicle cargo ship for the Department of the Navy have been invited by the Maritime Administration.

The ship will be operated by the Military Sea Transportation Service with civilian personnel. It will be designed for point-to-point sea transportation of wheeled, tracked, and amphibious vehicles. External and internal ramps are to be provided for vehicle traffic. In addition, cargo gear will be provided for handling of vehicles when circumstances do not permit use of the external ramps and for general cargo.



The first western European nuclear merchant ship will be constructed at Kieler Howaldtswerke, West Germany's largest shipyard, in accordance with a contract signed late last year. It is estimated that the vessel will leave the yard in 1967, with anticipated delivery date sometime in 1968. Construction of the ship will commence before the exact type of reactor to be used is determined. Possibilities of using an organic-moderated, a pressurized water, or a combination nuclear reactor-steam engine are being studied. Plans for a second German nuclear powered ship to be equipped with a boiling-water reactor are nearing completion at the Deutsche Werft. Final plans for this 45,000-ton freighter should be completed this year with delivery scheduled for 1965. Plans for a third nuclear ship, an express freighter of 12,000 deadweight tons propelled by a gas-cooled high temperature reactor are being developed at the AG-Weser yard.



Courtesy Maritime Reporter.



The first new passenger liner flying the American flag to come out in 5 years, Grace Line's *Santa Magdalena*, made her maiden arrival in the port of New York recently. Two of her sister ships, the *Santa Maria* and the *Santa Mariana*, are scheduled to follow her into service later this year, while the fourth, the *Santa Mercedes*, will enter service in 1964.



Direct overseas trade via the St. Lawrence Seaway reached a new high for U.S. Great Lakes ports during 1962, continuing a trend which began when the Seaway opened in 1959, according to a report by the Great Lakes Commission.

Direct overseas imports and exports last year exceeded 6 million short tons, according to preliminary estimates based on reports of the 20 U.S. ports which handle nearly all this type of traffic.

The Commission noted also that a substantial amount of overseas freight, in addition to the direct shipments, moves through U.S. lake ports before or after transshipment at Canadian ports on the lower St. Lawrence River.

There were 931 vessels of 1,000 gross tons and over in the active ocean-going U.S. merchant fleet on April 1, 1963, 29 more than the number active on March 1, 1963, according to the Maritime Administration, U.S. Department of Commerce.

There were 20 Government-owned and 911 privately owned ships in active service. These figures did not include privately owned vessels temporarily inactive, or Government-owned vessels employed in loading storage grain. They also exclude 23 vessels in the custody of the Departments of Defense, State, and Interior, and the Panama Canal Company.

There was an increase of 29 active vessels and a decrease of 29 inactive vessels in the privately owned fleet. Two freighters, *American Champion* and *Sheldon Lykes*, were delivered from construction. Two Government-owned freighters, the *American Ranger* and *Binghamton Victory*, were exchanged for the *Alcoa Planter*, *Alcoa Clipper*, and the *Monterey*. One tanker was transferred foreign. This made no change in the total of 979. Of the 68 privately owned inactive vessels, 3 freighters were being repaired or reactivated. The others were laid up or temporarily idle.



The first major bridge-aft tanker ever built in an American shipyard, the 47,000-ton *Sinclair Texas*, has been launched at Bethlehem Steel Co.'s Sparrows Point yard. When this prototype enters service this summer, she will be the largest U.S.-flag ship in the company's fleet. The Sinclair-designed tanker is 736 feet long, with a beam of 102 and a depth of 50. Her cargo capacity is 395,000 barrels.



The Coast Guard has ordered a second experimental televised-radar station for New York Bay to increase its RATAN test coverage of the area. The new station with its 140-foot tower will be located on a pier in Bayonne, N.J. The new station will cover the area from the Narrows to Canal Street on the Hudson River, to the Brooklyn Bridge on the East River, and to Kill Van Kull on the west.

# THEY PLOT FOR SAFETY'S SAKE

By Paul Van Wicklen

## U.S. Coast Guard AMVER System uses Electronic Computer as Aid to Efficient Search and Rescue Efforts Centered at Port of New York

EMERGENCIES HAVE a way of occurring at sea and in the sky above it. At such times the vast oceans of the world seem to assume an extraordinary air of loneliness to those needing aid. Often a life hangs in the balance or perhaps the lives of an entire crew. Who is going to help them? Even if their plight is made known, who is going to reach them in time?

Over the broad sweep of the Atlantic, automation is likely to lend a big hand. For headquartered at the Port of New York is the U.S. Coast Guard's AMVER operation—the Atlantic Merchant Vessel Report System—which uses an electronic computer to plot the location of about 800 vessels a day as they traverse the Atlantic.

When an emergency arises, this electronic brain is actuated by Coast Guardsmen skilled in its use to issue an AMVER Surface Picture (SURPIC). Within a few minutes after an alert has been sounded, the SURPIC, a list of vessels within range of a ship or plane in distress, is ready for transmission to the Coast Guard's Rescue Coordination Centers and other components of the international search and rescue team. Time is always of the essence in maritime emergencies. AMVER's ability to locate ships close to those in distress quickly and efficiently is truly a magnificent contribution toward saving life and property on the Atlantic's sea lanes.

But the Coast Guard stresses that maximum effectiveness of its AMVER system is dependent to a large extent on participation by members of the international maritime industry—shipowners, Government maritime agencies, charterers, and steamship companies. Ships of some 55 countries, about 14,000 freighters or liners in all, are already on file in the AMVER nerve center. Continuing cooperation from industry is needed by the Coast Guard to keep this list current.

Capt. Paul E. Burhorst, who was recently cited with the Coast Guard Commendation Medal for his "meritorious achievement in the performance of duties in developing, establishing, and maintaining the AMVER system," has consistently sought a broader coverage of ships on the



*All photos courtesy Port of New York Authority*

**CAPTAIN BURHORST**, the first COMEASTAREA AMVER officer, checks out changes made to the IBM 305 RAMAC control panel with Lieutenant Commander Mitchell who is in the process of assuming the job.

Atlantic for the computer. Lt. Comdr. Mark F. Mitchell, who is to succeed Captain Burhorst as AMVER officer in New York, is also striving to encourage enlistment of more ships in the program. The officers emphasize the voluntary nature of AMVER, that nothing more is expected of an AMVER-listed ship in an emergency than what shipmasters customarily give to fellow mariners in desperate straits. Moreover, AMVER information (ship positions) is not made public except when necessary for search and rescue purposes.

There are no limitations on the sizes of ships that may become active AMVER participants; the ability to participate in long-range, two-way communications is about the only qualification. This requirement automatically eliminates virtually all

local traffic close to port or along the coast and simultaneously qualifies most vessels crossing the Atlantic. Only a short sailing or movement plan prepared as a radio message need be sent to the Coast Guard to become an AMVER participant on any transatlantic passage. Vessels of *all* countries are invited to join in the mutual assistance program.

It is the responsibility of a line's owner or individual shipmaster to request their radio officers to transmit AMVER movement and position reports to the Coast Guard during the course of a voyage. These reports are submitted on a voluntary basis, but they are crucial to the effectiveness of the program. The electronic computer will maintain a mathematically accurate plot of a ship's advancing position by dead reckoning navigation





only to the extent that the ship follows her original course and speed submitted to AMVER at the start of her voyage. Occasional position reports at approximately 15° change of latitude or longitude, whichever is lesser, are encouraged. Frequent reports increase the accuracy of resulting plots—an accuracy on which the lives of many persons and/or millions of dollars of property might depend.

Revisions in reporting have arisen from recent expansion of the AMVER plotting area to cover all of the Atlantic north of the Equator, east to the Prime Meridian and west to include all of the Caribbean and Gulf of Mexico. Under the former AMVER setup radiomen often did not send their departure messages until reaching 67° west longitude on eastbound trips and 30° or 40° west longitude on westbound voyages. Now, such messages should be sent as soon as radio transmission can be established with one of the U.S. Government's stations at sea or on shore. No costs are involved in transmitting AMVER reports through these stations.

An excellent network of widely dispersed radio stations enables AMVER to function. These communications centers are found along the U.S. coast from Boston to Galveston; others are in Newfoundland, Bermuda, Puerto Rico, and Canal Zone; and four more are ocean station vessels in the mid-Atlantic. Position reports directed to the ocean stations are retransmitted to the Coast Guard station in Washington, D.C., which then sends them in teletype form to New York. AMVER reports received by the nine coastal stations and four overseas stations are also teletyped, over two different systems, to New York.

The teletyped position reports are received directly in AMVER headquarters within the Customhouse just a few steps away from the electronic computer. Seconds after the message arrives, it is manually checked for authenticity of the vessel's call sign and anticipated position. The report is then given to a card punch operator who translates the message

into the computer's language by indenting a standard punchcard. After verification, this card is fed into the computer, which stores the information in its fabulous "memory" until it is needed in a SURPIC.

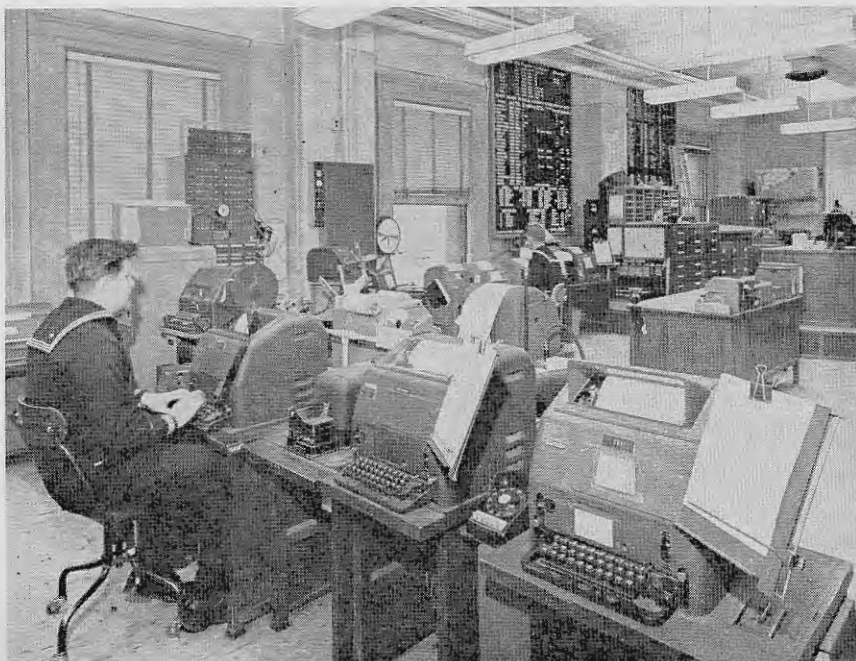
When an alert is sounded and a SURPIC is needed, it takes only seconds for AMVER to respond. Quickly, an experienced Coast Guard electronics specialist sitting at the computer's console types out an interrogation to the machine. A few minutes later the computer answers. Its response comes in an automatically typed message giving data on all vessels within a certain radius of the vessel or plane in need of emergency aid. In 13 standardized columns, the computer lists the name of each vessel, her call sign, latitude and longitude, date and time, course, speed, radio watch schedule, availability of surface radar, doctor aboard, radio telephone availability, destination, and estimated time of arrival. If the computer finds there are no vessels within the initial SURPIC requested, usually a 100-mile radius, a second interrogation is made to include ships within a 150- or 200-mile radius of the point of interest—the ship or plane in distress.

AMVER is called into action on an average of three times a day. During recent months its automated plottings have helped save lives in several publicized tragedies. When the

Greek cargo vessel *Captain George* was reeling about in the sea 360 miles northeast of Bermuda, the first two surface units to arrive at the stricken vessel's side were in the AMVER SURPIC covering the incident. These 2 ships would have saved all 25 of the crewmen had it not been for a mountainous sea and capsizing of a lifeboat filled with 20 men—all but 2 of whom were lost. As it was, the two AMVER ships saved a total of seven lives.

Flying Tiger Flight 923 ditched in the Atlantic at 10:12 p.m. last September 23. One of the two surface vessels arriving on the scene about 4 hours later was an AMVER vessel. Although she was not the ship that picked up the 48 survivors, she performed an invaluable role in relaying messages between circling aircraft and the actual rescue ship, which was not equipped with radio telephone.

There are many such cases in the files of AMVER at its unique acoustically tiled, air-conditioned nerve center in the Customhouse at New York. Members of the shipping industry are cordially invited to see the automated equipment in this room that saves untold life and property at sea. Representatives of steamship lines not presently acquainted with AMVER are not only urged to visit the center but to have vessels in their fleets become active AMVER participants.



SCENE OF the Third Coast Guard District COMEASTAREA communications center, the main artery through which search and rescue traffic, including AMVER messages, are transmitted and received.

## HOW TO TELL WHAT YOU KNOW

(Excerpts from a talk by Arthur Secord at the National Safety Congress)

Many years ago a naval battle was being fought between the British frigate, *Serapis*, and the Colonial frigate, *Bonhomme Richard*. They had been engaged for hours. The *Bonhomme Richard* was afire. She was sinking. And we are told that the British captain stood on the bridge of his ship and said, "Have you struck, sir?"

And a young colonial patriot, by the name of John Paul Jones, is reported to have replied, "I have not yet begun to fight."

That is all my history book told me. But I understand there was a sequel to that. When John Paul Jones said, "I have not yet begun to fight," a gunner, about ten feet away heard him, turned to his mate and said, "Did you hear that? Some so-and-so didn't get the word."

How can you and I be a little more sure when we say something to another human being, that person will hear what we *think* we said? How can we tell the boys what we know?

The first thing is that we have to speak the other fellow's language. What we say is never important. The important thing is, "What did someone hear? What did somebody think we said?"

Some months ago a freighter from the United States was coming into a Norwegian fjord. There is a standard operating procedure for entering this fjord. A ship stops outside the harbor, blows the whistle and a pilot comes out from a dock on the right and takes the ship in. The freighter dropped anchor, blew the whistle but no pilot appeared. So, the captain ordered the longboat overboard and rowed to the dock. A woman came down to meet him and said, "I am sorry, all the pilots are busy."

The Captain said, "Do you know where the rocks are in this fjord?"

"Every one," she said.

"I'll pay you the same fee I would a pilot if you will show us," the Captain said.

They rowed out to the ship, and he said, "You show the way—I'll handle the ship." She pointed.

Six minutes later they were on a rock. The captain roared, "I thought you knew every rock in this harbor."

She said, "that is the *first* one. Now, the *second* one..."

I wonder how many times, when someone reporting to us does something stupid, if we would analyze our orders carefully, we might discover that we asked this man for the location of the rocks, taking for granted

that he would know what we wanted was the location of the channel.

The second thing is that in any one speech situation there is never room for more than one point—one chief emphasis. Let me give you an example of that. A lot of management personnel have a feeling that it is a waste of time to go and bawl anybody out until you have enough things to tell him to make the trip worth while. You know what they do. They save up stuff.

You've got a fellow working for you and he's not so hot. You save up until you have eight things that you want to lay him out in lavender on. One day you come to work and you say to yourself, "This is the day to give him the business." In the middle of the shift you walk down where this man is and you let him have it on points one, two, three, four, five, take a little breath and give him six, seven, and eight. Then you walk away.

Do you know what has happened? That employee has gained an impression that something just went by. What it was he doesn't know, and I don't think he particularly cares. And I will make you two wagers. One—he hasn't a chance of remembering any one of the eight things you told him. And the second wager is—just to cover in case I lose the first one—if he does remember one of them, it will be either the first thing you told him or the last. One point is all there is room for in any one speech situation.

And that leads us quickly and naturally to a third subpoint and that is—that your one point must be dramatized by an example. You tell me I should do something. I either say or think, why? Can you give me an example?

Until you give me an example, I don't know what you are talking about. Until you give me an example, your interference with my thought process does not seem reasonable. Until you give me an example, I have no way to remember what you told me. For example. (You don't know what I mean by that until I give you an example.)

I was walking through a metal working shop one day, with a foreman. We came across a man operating a bandsaw which was protected by a hinged guard—and the guard was standing open. The foreman excused himself from me, got the attention of the operator, and holding up a hand on which there were some stumps where I suspect at one time

God in his wisdom had installed fingers, he said, "Ben, if I were you, I'd close the guard on that saw."

That is an example. And I submit to you that that example did three things for Ben. Number one, it made pretty clear what the foreman was talking about. Number two, I believe it made the foreman's request seem reasonable. And thirdly, I suspect that that dramatic example would make it impossible for that operator ever to forget what he had been told.

The fourth thing is the constant utilization of courtesy and tact and adaptability. The best definition I know of tact is this, "Tact is the ability to let the other fellow have your way." The human being who possesses that talent has something for which there is a real market in this tired old world this morning.

It is made up of little things, but things of tremendous importance. What are some of the little things? What do you call the people around you, "Hey, you?" Or do you call them by their name? Dale Carnegie was never more right than when he wrote that a man's name is to him the sweetest and most important sound in his language.

Another matter of tact is word choice. Lots of times you blow your stack, not because of the idea somebody is selling you, but because of the way in which they are selling it. People have bunions that you can't see and if you step on one of those, you are in trouble. Let's look at a couple of them.

There is a branch of a large corporation in a town not far from New York, which I have been told, has a gentlemen's agreement among management that one word is never used in the shop and that word is "goggles." I think you know why. If I am going to work in your organization tomorrow and you are doing the job training on me, you say, "Secord, in this area you have to wear goggles." Do you know what that sounds like? It sounds like something that is going to hurt my nose, pull on my ears or the back of my head and the lenses will get scratched and I will ask for another pair and they won't give them to me, and they are going to steam up twice a year—winter and summer.

Suppose that instead of telling me I have to wear goggles, you say, "You have to wear eye protection on this job." You will still get plenty of resistance, but I believe it is easier



for me to buy because "eye protection" at least sounds like something that was put in to help me. Do you know what "goggles" sounds, like? Something put in just so you could give orders. There is a big difference in the psychological response to those two words.

How about tact in job training? So many times we tell people what to do, we tell them what not to do, but we don't tell them why.

In the mill of a uranium mine in Elliott Lake, Ontario, I saw a sign that I thought was a good one. The top line said "Danger." The second line read, "Do not touch switch." If you drop it there, that is the most dangerous sign in the world because if you and I have character, we can't sleep nights until we touch that switch and see what happens. Do bells ring, do people scream, what happens? Underneath was the line, "Men at work on circuit." That made it a good sign. There isn't a sane human being who would touch that switch after reading that line. It told "why".

Once people know the why of a "DO" or the why of a "DO NOT," you normally will get better performance, but until they do, look out. Tell the people "why not".

If you and I will bear these things in mind, our human relations will improve, our communication techniques will be more effective, our ideas and knowledge will get across to the people who need them, and the companies with which we are associated, as well as each of us individually, will prosper.

### RED-EYED SWALLOWER



ANOTHER POPULAR warm-blooded vertebrate, high on the list of "grief at sea" is the Swallower. His cry is "hic" and is quarrelsome, especially uptown where he suffers his injuries, although he has been known to let the gangway roller ramble over an occasional foot. Found in all latitudes.

G. Seal

## LESSONS FROM CASUALTIES

### A CARELESS FALL

Recently a licensed officer with considerable experience suffered injuries and subsequent death as the result of falling from the main deck to lower No. 1 cargo hold.

While repairs were being accomplished to deep tank suction lines which had been removed from the tank and placed in a working area on the main deck alongside No. 1 hatch, it was decided to rig a canvas awning over this area because of the hot weather.

After three corners had been secured, the slack was being pulled out of the tarpaulin by an officer while standing on a cargo winch. He slipped and fell backwards, striking the edge of the hatch and falling into the cargo hold, a distance of about 40 feet.

Assistance was rendered immediately, and the injured was removed by Stokes basket and carried to his room. Radio medico messages were transmitted and a rendezvous with a vessel carrying a doctor was arranged. However, prior to the rendezvous and about 7 hours after the fall, he died of injuries and was subsequently buried at sea.—DON'T STAND ON DECK MACHINERY.

### INSPECTION OF CARGO HOLDS

A notation that "Death was the result of multiple body injuries due to a fall into the lower hold of a vessel while inspecting cargo holds," closed the pages of history on the career of a cargo supervisor.

Recently on a vessel in the west coast, an inspection of cargo holds to determine if they were clean enough to commence loading was requested by shoreside personnel and granted by the master. At this time they were also requested to wait until the hatches were open so that the inspection could be made under safe conditions.

Due to time limitations the shoreside cargo supervisors decided to make the inspections by flashlight and not wait until the hatches were opened. The master, in addition to cautioning them to be careful since the tween deck hatch boards were not in place, also assigned a ship's officer to accompany them.

Arriving at No. 5 hatch, the cargo supervisor hurriedly went down the emergency escape ladder without a flashlight and disappeared onto the tween deck. The mate, quite surprised at this, immediately descended to the tween deck, whereupon he saw a body falling into the lower hold.

Assistance was rendered but death came soon thereafter at a hospital.—THERE IS NO TIME LIMITATION ON SAFETY.

### LOOK OUT BELOW

"Death on arrival" and "Death due to injuries" were recent entries in the records of a hospital where two persons were taken after receiving injuries on board a merchant vessel.

The vessel moored to a pier early in the morning and longshoremen boarded immediately. One of the deceased, a uniformed security guard, was assigned as a roving patrol. The other deceased was a cargo checker who was assigned to a hatch that was being unloaded from top to bottom.

Shortly before 11 in the morning, discharge of the upper decks had been completed and the longshoremen made preparations to work the lower hold. The guard and checker decided to go below and wait, while the longshoremen proceeded to remove the remaining upper deck pontoons.

The removal was by use of a four-legged sling utilizing sister hooks which were placed in recessed pontoon fittings that are diagonal from each other. When the center pontoon was lifted free, the two remaining pontoons were moved and remained in a cocked position, bearing hard up against one another. Later, as one of these pontoons was being removed, the remaining one, which had previously been dragged away from the supporting ledge around the trunkway, no longer had support and fell to the deck below. The guard and checker who were engaged in conversation directly below were struck by the falling pontoon.

Assistance was immediate with subsequent removal to a hospital; however, the injuries received were fatal.—DON'T STAND IN OR NEAR THE SQUARE OF THE HATCH.



F/V RAMEUX II shown on fire shortly before sinking. The crew of eight men were safely removed by the Coast Guard.

TREASURY DEPARTMENT  
UNITED STATES COAST GUARD

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



MVI-3  
28 Dec 1962

Commandant's Action

on

Marine Board of Investigation; ruptured compressor manifolds aboard Barge *Mary Lee* while discharging ammonia cargo alongside pier at East St. Louis, Illinois, with attendant loss of life and personnel injury on 21 March 1962.

The record of the Marine Board of Investigation convened to investigate subject casualty, including its Findings of Fact, Conclusions, and Recommendations, has been reviewed.

The non-self-propelled cargo barge *Mary Lee*, while discharging cargo on 21 March 1962 at Phillips Petroleum Barge Dock, East St. Louis, Ill., suffered material failure of the manifolds on the port and starboard compressors resulting in the discharge of liquid ammonia. As a result of this casualty one person lost his life and another suffered injuries. A third person sustained relatively minor injuries immediately following the casualty while endeavoring to render assistance.

At the time of this casualty the barge *Mary Lee* was moored in company with the cargo barge *Marjorie B* alongside Phillips Petroleum Dock, East St. Louis, Ill. Although both barges contained anhydrous ammonia, only the *Mary Lee* was discharging at this time. The towboat *Dorothy I. Southern* was moored astern of the *Marjorie B* and a shoreworker, assisted by the chief engineer of the MV *Dorothy I. Southern*, was aboard the *Marjorie B* effecting electrical repairs. Discharging operations were being supervised by the port captain who, at about 4 p.m., approached the gageboard aboard the *Mary Lee* to check the progress of the discharge. Noting an excessive pressure reading the port captain reached to slow down the cargo pump, but then, hearing a pounding of the compressors, he immediately opened the main switches to the cargo pump and compressors. At this instant the compressor manifold, port and starboard, ruptured, releasing liquid ammonia. The electrical shoreworker on board the *Marjorie B* was observed to run toward the coupling spanned between the *Marjorie B* and the *Mary Lee*. In proceeding he entered the path of the cargo escaping from the ruptured port compressor and, turning to the right, passed into the discharge from the ruptured starboard compressor. Engulfed by liquid ammonia, he thereafter toppled between the barges *Mary Lee* and *Marjorie B* where he became suspended by one leg. Although the chief engineer of the MV *Dorothy I. Southern* made a hasty exit from the immediate scene of the casualty, he was subsequently found to have suffered injuries necessitating treatment for external burns and inhalation of ammonia vapors. The master of the *Dorothy I. Southern*, hearing the sound caused by the ruptured manifold, immediately donned a gas mask and proceeded to the scene where, upon dissipation of the attendant fumes, he observed the body of the shoreworker suspended between the

two barges and was able to raise the body onto the deck of the *Mary Lee* where it was found to be coated with frost and frozen.

The compressors aboard the *Mary Lee* are designed primarily for the purpose of refrigerating the cargo. They are equipped with spring-loaded heads so as to safely accommodate small quantities of liquid ammonia should it become inadvertently introduced into the compressor unit. They are also designed to be utilized in connection with the discharge of cargo. Investigation revealed that, on prior occasions, liquid ammonia had been detected in quantities requiring extensive draining operations of the condensers and compressors. On these prior occasions, the condition would be recognized by the pounding of the compressor at which time, in each instance, the compressor was secured and a small 1/2- to 3/4-inch hose line would be let over the side for drainage of the liquid cargo from the condenser and compressor unit. This operation would generally take approximately 1 hour to complete and indicates the quantity to be in excess of that which was intended to be accommodated by the spring-loaded heads.

REMARKS

It is considered that this casualty resulted from an excessive amount of liquid ammonia being drawn into the port and starboard compressors of the barge *Mary Lee* through the suction side of the compressor thereby causing the compressor manifolds to rupture. The Board's conclusion that the equipment installation aboard the barge would not function satisfactorily is not fully concurred in. A manufacturer's representative stated that he did not believe the hot gas system of unloading would work. However, he did not state that any portion of the system, including the use of compressors to generate the hot gas for the unloading cycle, was not satisfactory, but rather that the quantity of gas introduced into the tank would not be sufficient to force the liquid from the cargo tanks to the receiver.

Consistent with the Board's recommendation for further study of the subject installation, alterations in the design and operation of the machinery and piping systems on barges of this type have been made. These alterations are directed toward minimizing the possibility of any recurrence of this type of casualty by upgrading the manifold material and by relocating pertinent piping connections and the installation of an additional liquid trap so as to prevent liquid anhydrous ammonia from reaching the compressors. The possible need for additional regula-



tions to cover acceptability requirements for special machinery such as compressors and cargo pumps is being considered.

Concerning the Board's recommendation that personnel experienced in refrigeration operation be provided by operators of barges of this type, this problem is currently under study.

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

E. J. ROLAND,  
Admiral, U.S. Coast Guard,  
Commandant.

## READER'S COMMENT

### From the USNS *Laurentia* (T-AF 44)

As is customary at our regular ship's monthly Safety Meeting, your interesting publication "Proceedings" was reviewed and thoroughly discussed.

Specifically, the article by Captain Helmers, "The Manoeuvre of the Last Moment" was evaluated. In our combined opinion we agree with the recommended action in the referenced article, but suggest that instead of impressing the privileged vessel with proper action when collision is probable, let's try to emphasize, and bring out strongly to the burdened vessel its obligation and responsibility to stay clear and take early action so as not to put the privileged vessel in an uncomfortable position. Failing to keep clear should result in the burdened vessel being 100 percent wrong, as long as privileged vessel holds course and speed until collision can't be avoided by action of giving-way vessel alone.

In most crossing situations in international waters, plenty of sea room is available and the burdened vessel should take early action so as to eliminate any doubt. Far too many obligated vessels hold on until the watch officer on the vessel showing the red light is in a nervous situation.

On our ship, sea room permitting, our watch officers make a practice of taking action at the 5-mile range when we are burdened; with a radar plot this action is simple and safe, takes doubt out of a crossing situation, even allows room for correcting possible error and the loss of time is negligible. Two miles is the closest distance the burdened vessel should approach the privileged one, without taking action and this distance permits no room for error. With the use of radar plots, too many ships depend on their plot being completely accurate and elect to use a crossing distance or a closest approach point which is less than 1 mile. This is an unsafe practice, both vessels pushing full speed generates a dangerous setup which can be easily eliminated by early action.

I would rather be the burdened vessel every time and know what ac-



MR. ARNE ANDRESEN, third from left, is presented with a letter of appreciation by Capt. Claude H. Broach, USCG, Chief of the Merchant Marine Safety Division, 3d Coast Guard District. Looking on are Mr. O. E. Haaland, port captain of the Red Star Towing Co., far left, and Mr. Willard Quick, secretary-treasurer of the United Marine Division NMU (AFL-CIO) Local 333.

The letter, signed by Rear Adm. Richard M. Ross, Commander of the Third Coast Guard District, reads:

"It is with great pleasure that I extend to you the Coast Guard's appreciation and recognition for your commendable action while serving as a deckhand aboard the tug *Newport* when the barge *B No. 16* in tow of the *Newport* collided with the motorboat *Sue-Two* in New Haven Harbor, Connecticut, on August 21, 1962.

The official Coast Guard report of the investigation of the incident states that on August 21, 1962, at about 11:30 a.m., e.d.t., the motor tug *Newport*, towing the tank barge *B. No. 16* alongside to her starboard, was outbound in the main ship channel in New Haven Harbor. At this time, while working on deck, you heard the danger signal sounded by another vessel. Looking up, you saw men on the bridge of an inbound tank vessel waving their arms and pointing astern of the *Newport*. When you looked astern, you saw a partially submerged motorboat and four persons in the water in the wake of a barge. One of the men appeared to be in distress. You immediately dove overboard, swam to the man and towed him back to the *Newport* where he was lifted aboard and given artificial respiration.

The fine spirit demonstrated and the unselfish assistance rendered in this instance were in keeping with the best traditions of the United States Merchant Marine."

tion I am going to take, than have to wait out the proper action of a crossing vessel when privileged.

In concluding, our safety council agrees en masse that an article should emphasize full and early compliance with Rule 21 by burdened vessel there-

by eliminating any evasive action on the privileged vessel's part as brought out by above article. In the event the burdened vessel fails to give way and creates a situation resulting in a collision, then the burdened vessel should be adjudged 100 percent wrong.



# nautical queries

## DECK

Q. a. What is the purpose of a thrust block?

b. What type bearings are usually employed for thrust blocks?

c. How are the foundations for thrust blocks constructed?

A. a. Thrust blocks are designed to transmit the "push" or "pull" of the propeller to the vessel without allowing the thrust to reach the engine.

b. Thrust bearings on seagoing vessels are usually of the Kingsbury type. Horseshoe and tapered roller thrust bearings are also used.

c. Because of the magnitude of the forces to be handled, thrust blocks and their foundation must be of a sturdy character. Longitudinals under the thrust must be of heavy construction and spacing between longitudinals decreased in order to effectively transmit the force to the ship.

Q. What is meant by an A-60 bulkhead?

A. An A-60 bulkhead is constructed of steel or equivalent metal, suitably stiffened and made intact with the main structure of the vessel, such as shell, structural bulkheads, and decks. They shall be so constructed that if subject to the standard fire test, they would be capable of preventing the passage of flame or smoke for 1 hour. In addition, they shall be so insulated with approved structural insulation, bulkhead panels, or deck covering that the average temperatures on the unexposed side would not rise more than 250° F. above the original temperature, nor would the temperature at any one point rise more than 325° F. above the original temperature, within the time listed below:

Class A-60----- 60 minutes.

## ENGINE

Q. Discuss the advantages and disadvantages of the gate valve in comparison with the globe valve.

A. The gate valve is used when straight line flow is desired, without throttling requirements. When the valve disc (or gate) is wide open there is little resistance to flow and a minimum of pressure drop. The gate type valve is not suitable to a throttling operation as the velocity of flow

against a partially opened wedge can cause chattering, and damage to the seating surface.

The globe valve is suited to frequent operation and has excellent throttling characteristics. The direction of fluid flow is changed in passing through the globe valve, hence it offers greater resistance to fluid flow and greater pressure drop than the gate valve.

Q. What are the requirements regarding the breaking, setting, and sealing of safety valves?

A. If at any time it is necessary to break the seal on a safety valve for any purpose, the chief engineer shall advise the Officer in Charge, Marine Inspection, at the next port of call, giving the reason for breaking the seal and requesting that the valve be examined and adjusted by an inspector. The final setting shall be checked and adjusted under steam pressure by the inspector who upon acceptance shall seal the valves. This requirement applies to drum and also superheater valves, when the latter provide part of the required relieving capacity for the boiler.

Q. What preparation should be made for the inspection and hydrostatic test of boilers during the vessel's regular annual inspection?

A. It shall be the responsibility of the chief engineer to prepare the boilers for inspection. For internal inspection, manhole, and handhole plates, and washout plugs shall be removed as required by the inspector and the furnace and combustion

chambers thoroughly cooled and cleaned. Portable obstructions shall be removed as necessary for proper access. In preparing the boilers for the hydrostatic test, they shall be filled with water at not less than 70° F. and not more than 160° F. for water tube boilers and not more than 100° F. for fire tube boilers. The safety valves shall be secured by means of gags or clamps.

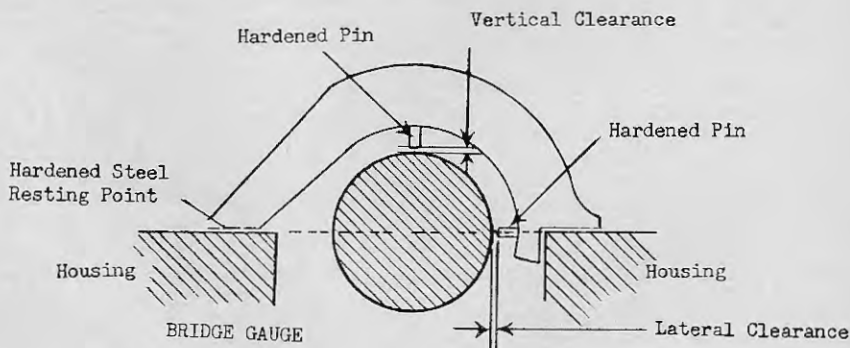
Q. What are the regulations pertaining to the flashpoint of the fuels used to drive internal combustion engines on passenger vessels exceeding 100 gross tons? What type of emergency generator is allowed to be installed on new passenger vessels or replaced on existing passenger vessels?

A. All internal combustion engines installed on passenger vessels exceeding 100 gross tons shall be driven by a fuel having a flashpoint exceeding 110° F. Any emergency generator installed on a new or existing passenger vessel must be driven by a diesel engine.

Q. Which of the following would not be a cause for a refrigeration system to short cycle on the high pressure cutout:

- (a) Insufficient cooling water to the condenser
  - (b) Clogged condenser
  - (c) Pressure cutout incorrectly set
  - (d) System overcharged with refrigerant
  - (e) Discharge valve leaking
- A. (e) Discharge valve leaking

Q. Sketch a bridge gauge in position on the bearing housing; and indicate the points at which the clearance is measured.



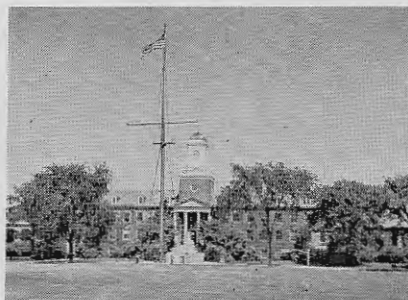


## COMPETITION FOR APPOINTMENT IN THE U.S. COAST GUARD ACADEMY CLASS OF 1968

The Commandant has announced the competition for appointment in the U.S. Coast Guard Academy Class of 1968. Appointments as Cadet, U.S. Coast Guard, are obtained only through an annual nationwide competitive examination. There are no congressional appointments, State quotas, or special categories of candidates.

The U.S. Coast Guard Academy, New London, Conn., educates and trains young men for careers as commissioned Coast Guard officers. The 4-year, tuition-free college education leads to a bachelor of science degree and a commission as Ensign, U.S. Coast Guard. Academy graduates are eligible for postgraduate education courses in the fields of aviation, oceanography, finance, management, public administration, and a number of engineering specialties.

Any male citizen of the United States may apply to take part in the competition if he meets the following requirements: Is between the ages of 17 and 22; is a high school senior or graduate; is between 5'4" and 6'6" in height; is single and has never been married; has a minimum uncorrected vision of 20/30 in each eye correctable to 20/20; is in good physical condition. Fifteen high school or college credits are required for eligibility in the



competition. Six (6) of the credits are required to be in the following subjects: three (3) in English, two (2) in Algebra, and one (1) in Plane Geometry.

The next competitive examination will be given on 7 December 1963 and will consist of the December administration of the College Entrance Examination Board tests. The examination is administered in over 2,000 examination centers in the United States and overseas. Application to take the College Board tests in the continental United States should be submitted by 8 November 1963, while applications to take the tests overseas should be submitted by 4 October 1963.

Information concerning the Academy and application forms for the

competition for appointment may be obtained by writing to Commandant (PTP-2), U.S. Coast Guard, Washington 25, D.C.

You are urged to inform your family and friends of the educational and career opportunities available through appointment to the U.S. Coast Guard Academy.

### NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 4-63

FEBRUARY 15, 1963

Subj: Bulk Liquid Cargoes; Classification List  
and Recommended Minimum Transportation  
Standards

EDITOR'S NOTE.—Due to space limitations the text of this circular and the enclosures thereto are not reprinted here. The purpose of this circular is to disseminate current recommended minimum standards for the transportation of carbon disulfide, liquefied flammable gases and ethyl ether which have been evaluated for transportation as bulk cargoes in merchant vessels. Guidance material on the classification characteristics of liquids for bulk transportation by water is also provided.

### NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 3-63

FEBRUARY 4, 1963

Subj: Sacrificial Anode Installations in Cargo Oil Tanks; Hazards From

#### PURPOSE

To describe the hazards associated with the installation of sacrificial anodes in cargo oil tanks and to outline inspection precautions to be followed.

#### DISCUSSION

Aluminum has long been considered a safe nonsparking material. Although this idea is generally valid, a sparking hazard may be created when aluminum alloys make violent contact with rusted steel surfaces. This sparking is believed to be due to a "thermite" type reaction between the aluminum and the iron oxide. Among the common anode metals the order of increasing spark hazard is zinc, aluminum, and magnesium. Zinc does not appear to present any spark hazard in anode applications. Magnesium readily produces incandescent sparks when it strikes rusty steel. A 2- to 3-foot fall onto a sloping rusty tank surface is sufficient for typical magnesium anodes to ignite an explosive atmosphere. Aluminum also produces incandescent sparks but requires a more violent impact to do so. Addition of magnesium to aluminum alloys increases the risk of incandescent spark generation in proportion to the magnesium added.

#### ACTION

Anode installations shall be examined carefully when conducting tank inspections and the following guidelines

followed in examining aluminum and magnesium systems:

a. Anodes should not be located near tank openings where they may be easily broken loose. Tank cleaning openings are locations of particular concern since the arm of the washing machine may strike the anodes.

b. Anodes should be located to avoid a long fall. The web of longitudinal stiffeners may be used to catch falling anodes or pieces of them when installation high above the tank bottom is necessary. Nylon net bags should not be used. This introduces the risk of static charges building up on anodes which have become insulated from the hull by falling into the bags.

c. Defects in casting should be looked for in new anode installations. In particular, the anode strap should be properly centered in the anode. If the strap is not centered within the anode material, a small amount of corrosion will allow a large chunk of anode material to fall.

d. The attachment of the anode to the structure of the vessel shall be sufficient to hold the anode assembly securely in place. Welds shall be properly sized and checked for soundness. If bolted connections are used, the bolts shall be of adequate size and means shall be provided to prevent the nuts from backing off. Wasted bolts shall be replaced.

e. If a defective anode or anode mounting is discovered, the remaining units should be investigated carefully as there probably will be others in a similar condition.

# NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 5-63

FEBRUARY 18, 1963

## Subj.: Deck and Engineer License Examinations, grouping of subjects, and sequence of administering

### PURPOSE

To advise deck and engineer candidates for an original, raise of grade, or increase in scope of license of the grouping of examination subjects and the order in which these groups will be administered in future examinations.

### ACTION

The subjects for deck officers' licenses listed in table 46 CFR 10.05-45(b) have been categorized into five general groups as shown in enclosure (1) to this circular. A candidate for a deck officer's license will be examined

in applicable subjects in the order of the groups listed. For example, group 1 will be given first and completed in its entirety before proceeding to group 2 and so on. However, it is not intended that the subjects within each particular group will be necessarily administered in the order set forth. This shall be left to the discretion of the officer administering the examination in order to provide for the most efficient use of his and the candidate's time.

Similarly, a candidate for an engineer's license will be examined in applicable subjects for an original, raise of grade, or increase in scope of license in the sequence of groups as set forth in enclosure (2) of this circular.

## ENCLOSURE (1) TO NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 5-63

### Grouping of Deck Officer's License Examination Subjects

#### GROUP 1

##### Navigation

1. Latitude by Polaris
2. Latitude by Meridian Altitude Method
3. Fix or Running Fix
4. Star Identification
5. Compass Deviation
6. Middle Latitude Sailing
7. Mercator Sailing
8. Great Circle Sailing
9. Piloting

#### GROUP 2

1. International and Inland Rules of the Road

#### GROUP 3

1. Chart Navigation
2. Aids to Navigation
3. Instruments and Accessories
4. Magnetism, Deviation and Compass Compensation
5. Chart Construction
6. Tides and Currents

#### GROUP 4

1. Ocean Winds, Weather and Currents
2. Nautical Astronomy and Navigation Definitions
3. Stability and Ship Construction
4. Seamanship
5. Cargo Stowage and Handling
6. Change in Draft Due to Density
7. Determination of Area and Volume
8. Speed by Revolutions
9. Fuel Conservation

#### GROUP 5

1. Signaling by International Code Flags, Flashing Light; Lifesaving, Storm and Special Signals
2. Lifesaving Apparatus and Fire Fighting Equipment
3. Ship Sanitation
4. Rules and Regulations for Inspection of Merchant Vessels
5. Laws Governing Marine Inspection
6. Ship's Business
7. General
8. Practical Demonstration of Knowledge and Use of the Sextant

## ENCLOSURE (2) TO NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 5-63

### Grouping of Engineer's License Examination Subjects

- |  |                       |
|--|-----------------------|
| 1. General (Including Mathematics and Sketch or Drawing) | 4. Boilers            |
| 2. Steam Engines   | 5. Electricity        |
| 3. Motor (Internal Combustion Engines)                   | 6. Refrigeration      |
|  | 7. Engineering Safety |

## REVISION TO SNAME T & R BULLETIN NO. 2-5

Since publication of Bulletin No. 2-5, "Tentative Code for the Selection of Wrought Aluminum Alloys for Ship Structures," there have been a number of revisions to the ASTM Specifications listed in the footnotes to the alloy descriptions given in parts 1 and 2 of the bulletin. These include additional tempers as well as revisions to some of the guaranteed property values for various thickness ranges. In addition, ASTM has replaced its

former alloy grade numbers with those established by the Aluminum Association and which are specified in "American Standard Alloy Designations for Wrought Aluminum" (American Standards Association Number H35.1-1962). Thus, Grade 6061 replaces Grade GS-11-A in part 1; Grade 5086 replaces Grade GM-40-A for Grade "A" in part 2; and Grade 5456 replaces Grade GM-51-A for Grade "B" in part 2.

The intent and scope of the "Tentative Code" has not been changed by these revisions. For material procurement purposes and for readers desiring detailed property, composition and temper information, the latest issue of the applicable ASTM specifications should be used.

Extra copies of this addendum may be obtained by contacting the Society of Naval Architects and Marine Engineers, 74 Trinity Place, New York City.



annual session of the Merchant Marine Council, and contains the regulations proposed in Item IX, which are accepted without change.

(Federal Register of April 24, 1963.)

## **TITLE 46—SHIPPING**

### **Chapter I—Coast Guard, Department of the Treasury**

[CGFR 63-13]

#### **GAS FREEING, INSPECTION AND TESTING REQUIRED WHEN MAKING ALTERATIONS OR REPAIRS INVOLVING HOT WORK; AND AMENDMENTS OF A PRIOR DOCUMENT**

The Merchant Marine Council held a Public Hearing on March 12, 1962, for the purpose of receiving comments, views and data with respect to miscellaneous vessel inspection proposals. The notice of proposed rule making was published in the Federal Register on January 23, 1962 (27 F.R. 657-665). The Merchant Marine Council Public Hearing Agenda (CG-249), dated March 12, 1962, sets forth the proposed regulations in detail and copies thereof were furnished to all who had indicated an interest in the subjects set forth therein.

This document is the ninth of a series regarding the regulations and acts considered at the March 12, 1962, Public Hearing and Annual Session of the Merchant Marine Council. This document contains the final actions taken with respect to "Gas freeing, inspection and testing required when making alterations, repairs, etc., involving hot work" in "Item III—Vessel Operations and Inspections" (CG-249, pages 141-144). These proposals, as revised and set forth in this document, are approved.

The final actions on these proposals and comments were deferred pending the outcome of certain important changes regarding certificated gas chemists. While the language of the proposals in the aforementioned Agenda (CG-249, pages 141-144) was changed, the requirements are still essentially the same. One important change is the acceptance, as a guide, of the revised "Standard for the Control of Gas Hazards on Vessels to be Repaired" (NEPA No. 306), published by the National Fire Protection Association, 60 Batterymarch Street, Boston, Mass. Another is the recognition that this Association on March 1, 1963, assumed the function of certificating gas chemists, a function performed heretofore by the American Bureau of Shipping, and that by April 1, 1963, the American Bureau of Shipping certificates issued to gas

chemists will have been replaced and superseded by National Fire Protection Association certificates.

The sixth document in this series contained miscellaneous amendments to the vessel inspection regulations and was published in the Federal Register of September 11, 1962 (27 F.R. 9016-9048). The amendment to 46 CFR 31.10-20(a) regarding the dry-docking requirements for tank vessels and tank barges was intended to revise the paragraph's introductory text only, and was not intended to cancel subparagraphs (1) to (4), inclusive, as well (27 F.R. 9022). There is set forth in this document the complete corrected text of 46 CFR 31.10-20(a) (including subparagraphs (1) to (4), inclusive). The amendment to 46 CFR 61.20-20 regarding boiler mountings and attachments (27 F.R. 9032) in subdivision (c) (1) (ii) has the word "it" when the word should be "is" in the phrase "pad it attached." There is set forth in this document the corrected text of 46 CFR 61.20-20(c) (1) (ii).

(Federal Register of April 4, 1963.)

#### **EQUIPMENT APPROVED BY THE COMMANDANT**

[EDITOR'S NOTE.—Due to space limitations, it is not possible to publish the documents regarding approvals and terminations of approvals of equipment published in the Federal Register dated April 24, 1963 (CGFR 63-16). Copies of these documents may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C.]

#### **ARTICLES OF SHIPS' STORES AND SUPPLIES**

Articles of ships' stores and supplies certificated from April 1 to April 30, 1963, 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 Hockwald Co.*, Post Office Box 24,000, San Francisco, Calif.:

Certificate No. 560, dated April 1, 1963, HOCKWALD P-20.

Certificate No. 561, dated April 1, 1963, HOCKWALD 848.

*Montgomery Chemical Co.*, Post Office Box 187, Jenkintown, Pa.:

Certificate No. 562, dated April 1, 1963, MONCO AEROSOL RUG CLEANER.

*Magnus Chemical Co., Inc.*, Garwood, N.J.:

Certificate No. 324, dated April 23, 1963, MAGNUS AUTOMATIC TANK WASH.

Certificate No. 326, dated April 23, 1963, MAGKLEEN #1.

Certificate No. 329, dated April 23, 1963, MAGNUS DEGREASER 7-11.

Certificate No. 330, dated April 23, 1963, MAGNUS FUEL OIL TREATMENT.

Certificate No. 331, dated April 23, 1963, MAGNUS LUBRIFIN.

Certificate No. 333, dated April 23, 1963, MAGNUS SUPER SCALE SOLVE.

Certificate No. 352, dated April 23, 1963, MAGNUS FUEL OIL TREATMENT SPECIAL.

##### **AFFIDAVITS**

The following affidavits were accepted during the period from March 15, 1963 to April 15, 1963:

<sup>1</sup> *Boston Electro Steel Casting, Inc.*, 53 Gerard St., Boston 19, Mass., FITTINGS, CASTINGS, AND VALVES.

*National Steel and Shipbuilding Co.*, Harbor Drive & 28th St., San Diego 12, Calif., FITTINGS.

*Kerotest Manufacturing Co.*, division of Miller Printing Machinery Co., 2525 Liberty Ave., Pittsburgh 22, Pa., VALVES AND FITTINGS.

*General Valve Co., Inc.*, 2817 Cherry Ave., Long Beach 6, Calif., VALVES.

*American Chain & Cable Co., Inc.*, R-P & C Valve Division, Reading, Pa., VALVES AND FITTINGS.

*Conoflow Corp.*, 2100 Arch St., Philadelphia 3, Pa., VALVES AND FITTINGS.

*Jenkins Bros.*, 510 Main St., Bridgeport 9, Conn., VALVES.

*The Ohio Injector Co.*, 275 Main St., Wadsworth, Ohio, VALVES.

*Mar-Dustrial Sales, Inc.*, Swan Island, Portland 17, Oreg., VALVES.

*Brooks Equipment Corp.*, 217 Hudson St., Hoboken, N.J., VALVES.

*Grinnell Co., Inc.*, 260 West Exchange St., Providence 1, R.I., VALVES, FITTINGS AND FLANGES.

<sup>1</sup> Currently listed in CG-190 for FITTINGS AND CASTINGS. The listing is hereby annotated to indicate that the listing includes VALVES.

NOTE: Dilbert, Bancroft & Ross Co., Ltd., 3400 Tulane Ave., New Orleans, La., will be deleted in the Formerly Approved Affidavit Section and will be added to the Currently Acceptable Affidavit Section as Dilbert, Bancroft & Ross Co., Ltd., P.O. Box 50490, New Orleans 50, La., in the revised edition of CG-190 for the following item CASTINGS.

## MERCHANT MARINE SAFETY PUBLICATIONS

The following publications that are directly applicable to the Merchant Marine 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 parentheses 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 Examination for Merchant Marine Deck Officers (7-1-58).
108	Rules and Regulations for Military Explosives and Hazardous Munitions (8-1-62).
115	Marine Engineering Regulations and Material Specifications (2-1-61). F.R. 9-30-61, 9-11-62, 12-28-62, 4-4-63.
123	Rules and Regulations for Tank Vessels (1-2-62). F.R. 5-2-62, 9-11-62, 2-6-63, 4-4-63.
129	Proceedings of the Merchant Marine Council (Monthly).
169	Rules of the Road—International—Inland (6-1-62), 1-18-63.
172	Rules of the Road—Great Lakes (6-1-62). F.R. 8-31-62.
174	A Manual for the Safe Handling of Inflammable and Combustible Liquids (7-2-51).
175	Manual for Lifeboatmen, Able Seamen, and Qualified Members of Engine Department (9-1-60).
176	Load Line Regulation (9-1-61). F.R. 7-27-62, 11-14-62, 2-2-63.
182	Specimen Examinations for Merchant Marine Engineer Licenses (12-1-59).
184	Rules of the Road—Western Rivers (6-1-62). F.R. 1-18-63.
190	Equipment Lists (4-2-62). F.R. 5-17-62, 5-25-62, 7-24-62, 8-4-62, 8-11-62, 9-11-62, 10-4-62, 10-30-62, 11-22-62, 11-24-62, 12-29-62, 1-4-63, 1-8-63, 2-7-63, 2-27-63, 3-20-63, 4-24-63.
191	Rules and Regulations for Licensing and Certifying of Merchant Marine Personnel (6-1-62). F.R. 10-4-62, 12-28-62, 1-22-63.
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (7-1-58). F.R. 3-30-60, 5-6-60, 12-8-60, 7-4-61, 5-2-62, 10-5-62.
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 (8-1-61). F.R. 11-3-61, 12-12-61, 8-8-62, 8-31-62, 11-15-62, 1-30-63, 3-27-63.
249	Merchant Marine Council Public Hearing Agenda (Annually).
256	Rules and Regulations for Passenger Vessels (1-2-62). F.R. 5-2-62, 9-11-62, 12-28-62, 4-4-63.
257	Rules and Regulations for Cargo and Miscellaneous Vessels (11-1-62). F.R. 2-1-63, 2-6-63, 3-13-63, 4-4-63.
258	Rules and Regulations for Uninspected Vessels (9-1-61). F.R. 1-20-62, 4-24-62, 5-2-62, 9-11-62.
259	Electrical Engineering Regulations (12-1-60). F.R. 9-30-61, 9-23-61, 5-2-62, 9-11-62.
266	Rules and Regulations for Bulk Grain Cargoes (5-1-62). F.R. 9-11-62.
268	Rules and Regulations for Manning of Vessels (2-1-63).
269	Rules and Regulations for Nautical Schools (3-1-60). F.R. 3-30-60, 8-18-60, 11-5-60, 7-4-61, 9-30-61, 12-13-61, 5-2-62, 9-11-62.
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.
293	Miscellaneous Electrical Equipment List (6-1-62).
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf (10-1-59). F.R. 10-25-60, 11-3-61, 4-10-62, 4-24-63.
323	Rules and Regulations for Small Passenger Vessels (Not More Than 65 Feet in Length) (6-1-61). F.R. 9-11-62, 10-5-62, 12-28-62, 1-22-63.
329	Fire Fighting Manual for Tank Vessels (4-1-58).

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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 in the table of changes below.

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### CHANGES PUBLISHED DURING APRIL 1963

The following have been modified by Federal Registers:  
 CG-115, CG-123, CG-256 and CG-257, Federal Register, April 4, 1963.  
 CG-190 and CG-320, Federal Register, April 24, 1963.



CHIPPING RUST WAS STANISLAUS  
PECK,  
WITH HIS GLASSES WAY  
SOUTH OF HIS NECK.  
HIS EYES HAD BEEN BLUE,  
NOW THEY'RE A RED SPECKED  
HUE,  
AND HE CAN'T SEE A THING OUT  
ON DECK.

