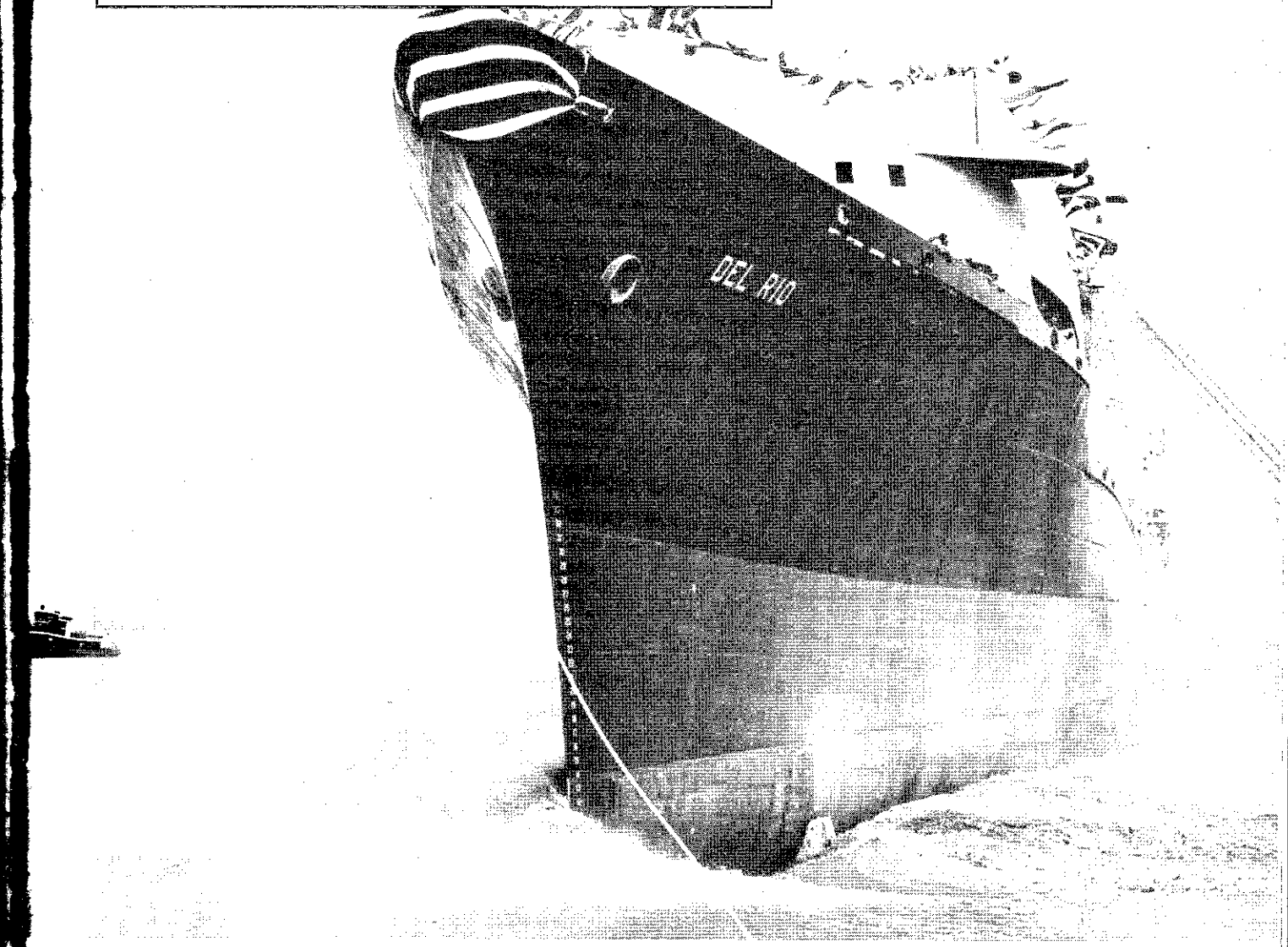
PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

UNITED STATES COAST GUARD

Vol. 17, No. 10 • October 1960

CG–129



Features

RELATIVE VERSUS TRUE

TANKER SAFETY PROBLEMS

PROCEEDINGS

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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

The bow of *Del Rio*, first cargo liner of Delta Lines fleet replacement program, dramatically churns the Mississippi in a side-launching at Avondale Marine Ways. *Photo courtesy Mississippi Steamship Co.*

BACK COVER

The Ships—As Figured From the Office. More from a series of cartoons by A. E. Merrikin, *courtesy The Range Light.*

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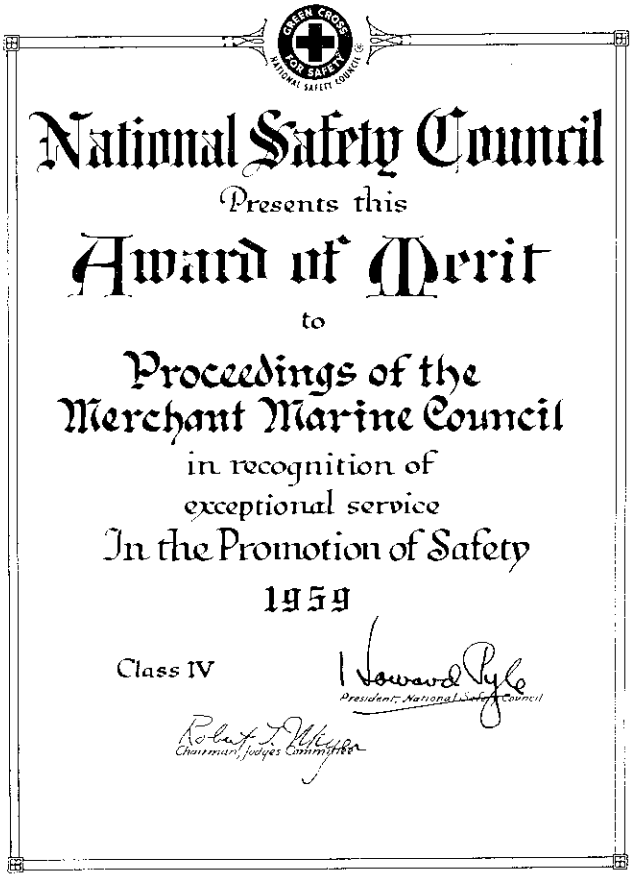
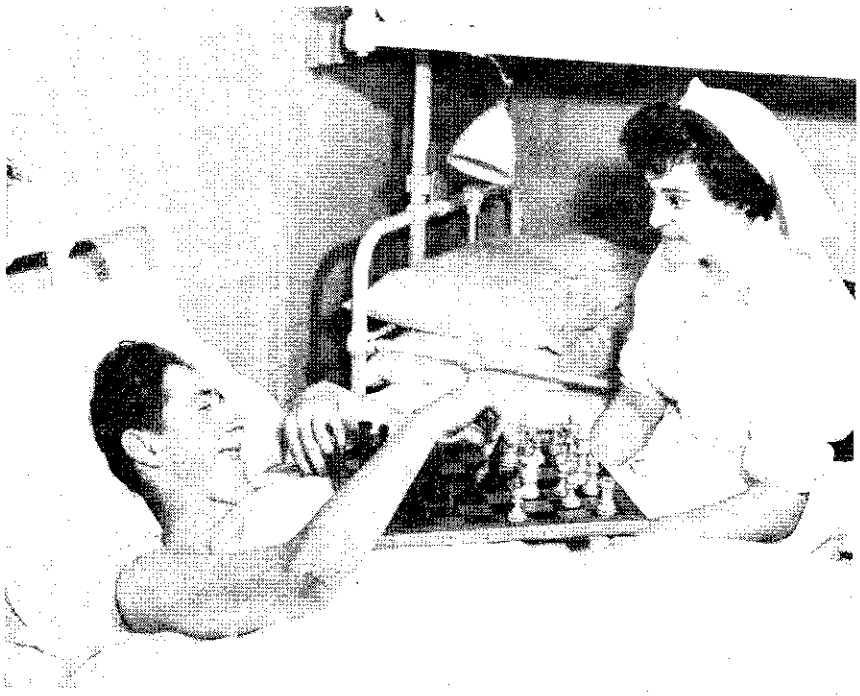


THE VALUE OF AMVER



SEAMAN DONALD J. MACINTYRE finds some cheer in a game of chess with pretty nurse Barbara Evans in the infirmary aboard the Canadian Pacific passenger liner SS *Empress of Britain*. MacIntyre was taken aboard the luxury liner in a transfer at sea after suffering a spine injury in a fall aboard the freighter SS *Zinnia* July 25. *Photo courtesy Canadian Steamship Limited.*

JUNIOR APPRENTICE SEAMAN Donald J. MacIntyre fell and seriously injured his back aboard the British Freighter SS *Zinnia* at about 1500, July 25. This British cargo vessel was about 500 miles south of Reykjavik, Iceland, bound for Hudson Bay, and did not have a doctor on board. The situation was serious. The 18-year-old crewman was partially paralyzed, and immediate help was needed. Captain Hunter, Master of the *Zinnia*, called the Coast Guard Cutter *Casco*, on duty at Ocean Station Charlie 400 miles to the southwest, for help in getting medical aid for the injured sailor. The *Casco* quickly relayed the information to the U.S. Coast Guard Atlantic Search and Rescue Coordinator (Commander, Eastern Area) in New York. In less than twenty minutes information from the AMVER Center was sent out to the *Zinnia*, listing the Canadian Pacific passenger ship SS *Empress of Britain*, a luxury liner equipped with excellent hospital facilities. The *Empress of Britain* was computed by the AMVER Center to be about 30 miles from the *Zinnia*'s position.

Emergency surgery for a Swedish seaman in midocean—a tanker sinking off South Carolina—food poisoning aboard a Venezuelan cargo vessel in the Caribbean Sea—the ditching of a Canadian aircraft off Nova Scotia. These are some of the many search and rescue cases in which merchant vessel positions, supplied from the AMVER Center, were used to good advantage in relieving distress on the high seas during recent weeks.

In many such cases, a short delay in the arrival of help can make the difference between life and death. Speed and efficiency are watchwords of search and rescue the world over, and perhaps no case demonstrates more clearly just how quickly and efficiently the AMVER system can work than one which occurred off the coast of Iceland July 25.

Captain J. P. Dobson, DSC, Master of the 20,000-ton *Empress of Britain*, quickly responded to the *Zinnia*'s call for help, and a rendezvous was arranged. The seas were favorable and the two vessels hove to about 500 yards apart. Captain Dobson sent a motor launch with his staff physician, Dr. M. Bowen, to the freighter. The doctor examined the patient and decided to transfer him to the passenger liner's hospital. The youthful seaman was strapped into a litter and lowered by hand lines to the waiting boat. At 1745 he was aboard the *Empress of Britain* and bound for hospital care ashore.

About three hours from the time Mr. MacIntyre was injured, he was under a doctor's care by virtue of the assistance made available by the AMVER system and the AMVER-participating *Empress of Britain*. The patient underwent surgery at Montreal Neurological Institute shortly after the vessel arrived there on July 29. By Auguest 21 he was well enough to travel, and was flown to London for further hospitalization.

Captain Dobson and his crew are congratulated for their action, which is a fine example of the traditional custom of the sea.

RELATIVE VERSUS TRUE

By LCDR Edward F. Oliver, USCG

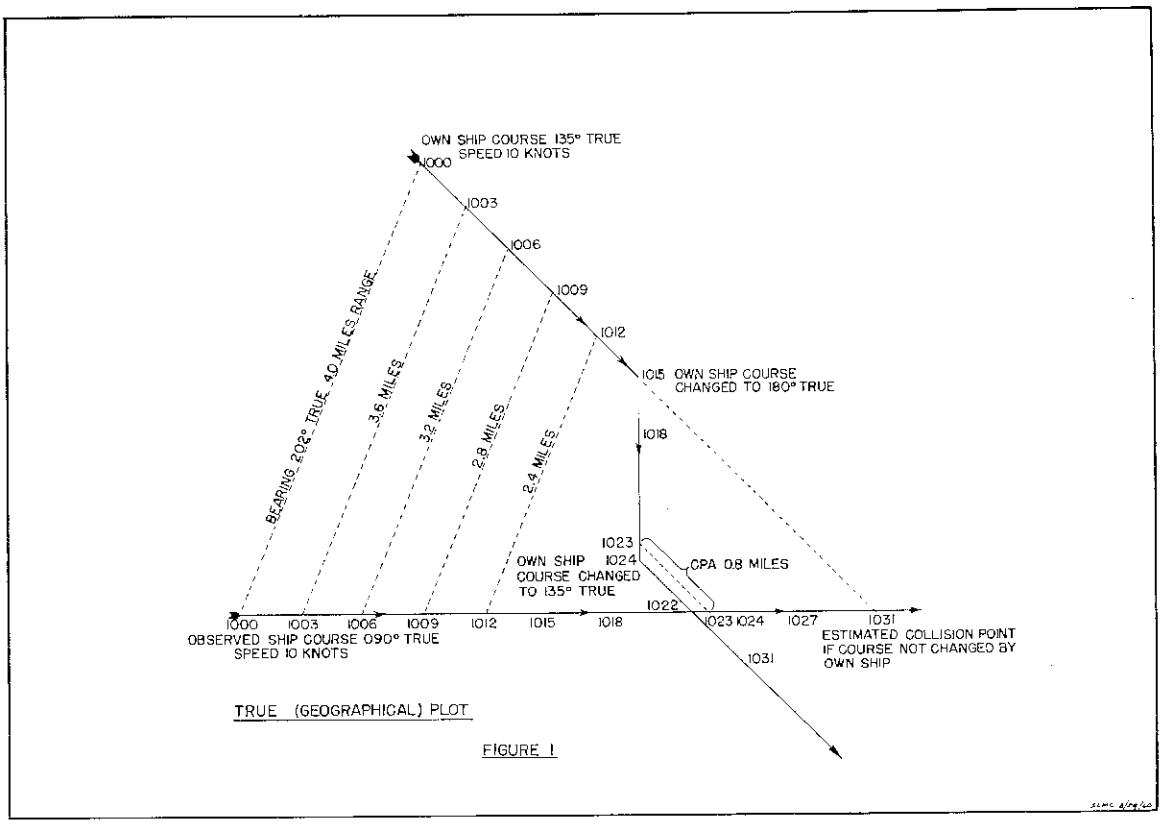


FIGURE 1

THE IRON MEN who sailed the wooden sailing ships had to become familiar with steamship terminology; so today, the 20th Century navigator must be able to discuss all aspects of radar plotting intelligently and correctly.

A common error in terminology which has become prevalent is the one whereby a radar plot based on true bearings is incorrectly called a "true" plot. This misuse of terminology is misleading and confusing. Basically there are two plotting methods—true and relative. A *true plot*, also called a navigational and a geographical plot, represents the movement of your own ship and the observed ship in accordance with their true course and speed. A *relative plot* is one in which your own ship is considered to be stopped. The movement of your ship and the observed ship is given to the pip. In other words, it is a plot of the other ship's apparent movement in relation to your own ship. The *relative plot* can be based on either true or relative bearings of the observed ship. The *true plot* (navigational plot) furnishes true course and speed of the observed ship directly. However, it requires laborious plotting on a wide expanse of plotting paper. The dead-reckoning positions of your own ship are set down, and from these, the other vessel's positions are plotted in terms of range and bearing. A line drawn through successive positions of the observed ship thus obtained would give her true course. Her speed can be calculated from the distance traveled in an elapsed period of time between two positions. (See figure 1).

In order to determine the closest point of approach (CPA) using the true plotting method and assuming that neither vessel will alter course or speed, it is necessary to extend both tracks ahead by dead-reckoning. An approximation may be thus determined of the positions and the times at which the two vessels will be in these positions. The process is tedious and a correct solution is not readily apparent.

No "seaman's eye" can run a "mental plot." In clear weather, when you see a vessel with the right-of-way on a collision course, you know that under the Rules of the Road you must ACT to prevent collisions.

In poor visibility radar is the best available substitute for vision, but only to a limited extent. Since a pip of light on a small glass or plastic disc does not provide immediate aspect, the information on the radar scope must be interpreted properly. As in periods of clear visibility, timely ACTION must be taken to avoid collision.

In previous issues of the PROCEEDINGS LCDR Oliver discussed the uses of the maneuvering board. In "Relative Versus True" Mr. Oliver discusses the terminology used in radar plotting.
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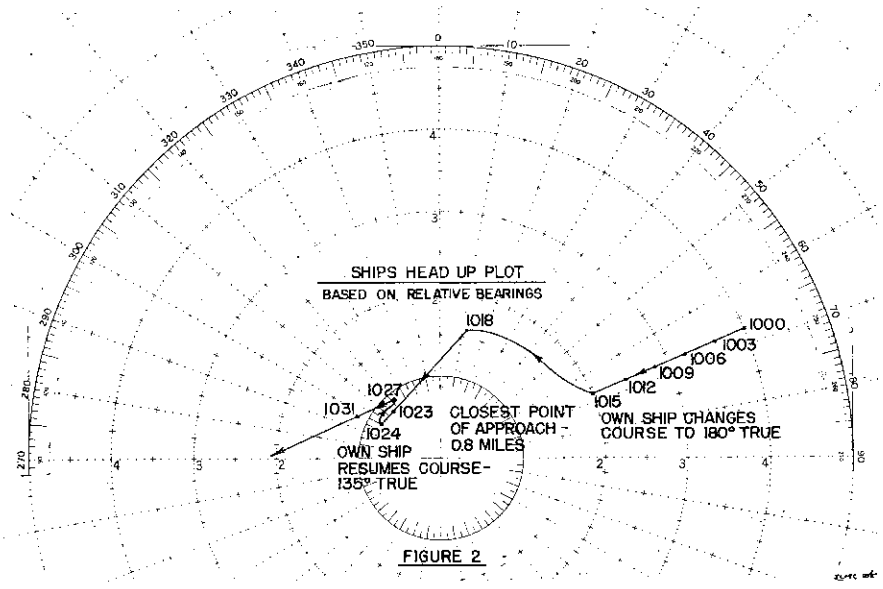


FIGURE 2

NAVAL USE OF TRUE PLOT

Naval vessels use *true plotting*, relying on elaborate equipment designed primarily for dead-reckoning and gunfire control. A dead-reckoning tracer (DRT) or electric "bug" automatically plots a ship's dead-reckoning position. A universal drafting machine to provide true bearings from successive positions of the "bug" is fitted, and a range scale on its straight edge facilitates plotting of another vessel's distance. While it could be used for navigational plotting, such elaborate equipment is rarely installed on merchant types vessels. Even on vessels provided with this equipment, maneuvering boards are used to determine CPA, courses to alter to in order to pass at a given distance, etc. The inherent simplicity and accuracy of the maneuvering board solution has the advantage of providing correct answers rapidly.

MANEUVERING BOARD

The only practicable method of plotting aboard a merchant ship is by the use of the relative plot using the maneuvering board (H.O. 2665). As previously mentioned, there are two types of relative plots—one based on true bearings of the observed ship—the other based on bearings measured with respect to the bearings of your own ship's head (relative bearings).

Aboard a vessel equipped with a gyro stabilized radar, the mariner has the choice of using either true or relative bearings. When he finds it easier to orient objects in relation to his ship's head directly, he may prefer to set the heading flasher on relative ship's head-up) positions.

USE OF RELATIVE BEARINGS

If relative bearings are used, a "yawing" error is introduced. Since the radar will show the bearing of a pip relative to the ship's head, this bearing will be in error unless your vessel is exactly on course as the radar beam is reflected from an object.

Smudging will also occur as successive paintings show the pip at differing angles from the ship's head. Afterglow causes these successive pips at different angles to remain on the scope, creating the impression that the pip is broader in bearing than its actual size warrants. Another disadvantage in using relative bearings is the "jump" that occurs when you change course. The pip appears to "jump" to a new point in the direction opposite to that in the movement of your own ship's head. The relative bearings taken immediately before and after the alteration of course will differ by the number of degrees in the course change.

DISADVANTAGES

The disadvantages of plotting relative bearings as contrasted to true bearings are graphically illustrated in figures 2 and 3 with the same problem used as in the navigational (true) plot in figure 1. In figure 2 the "jump" breaks the continuity of the pip's

(*Continued on page 173*)

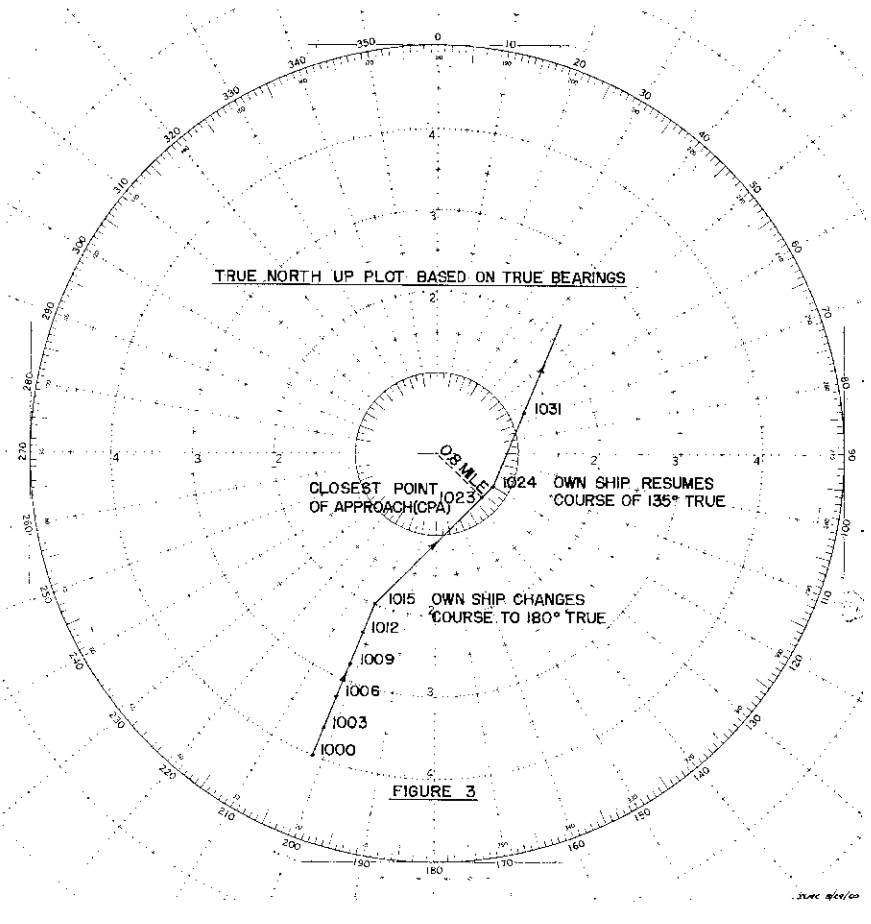
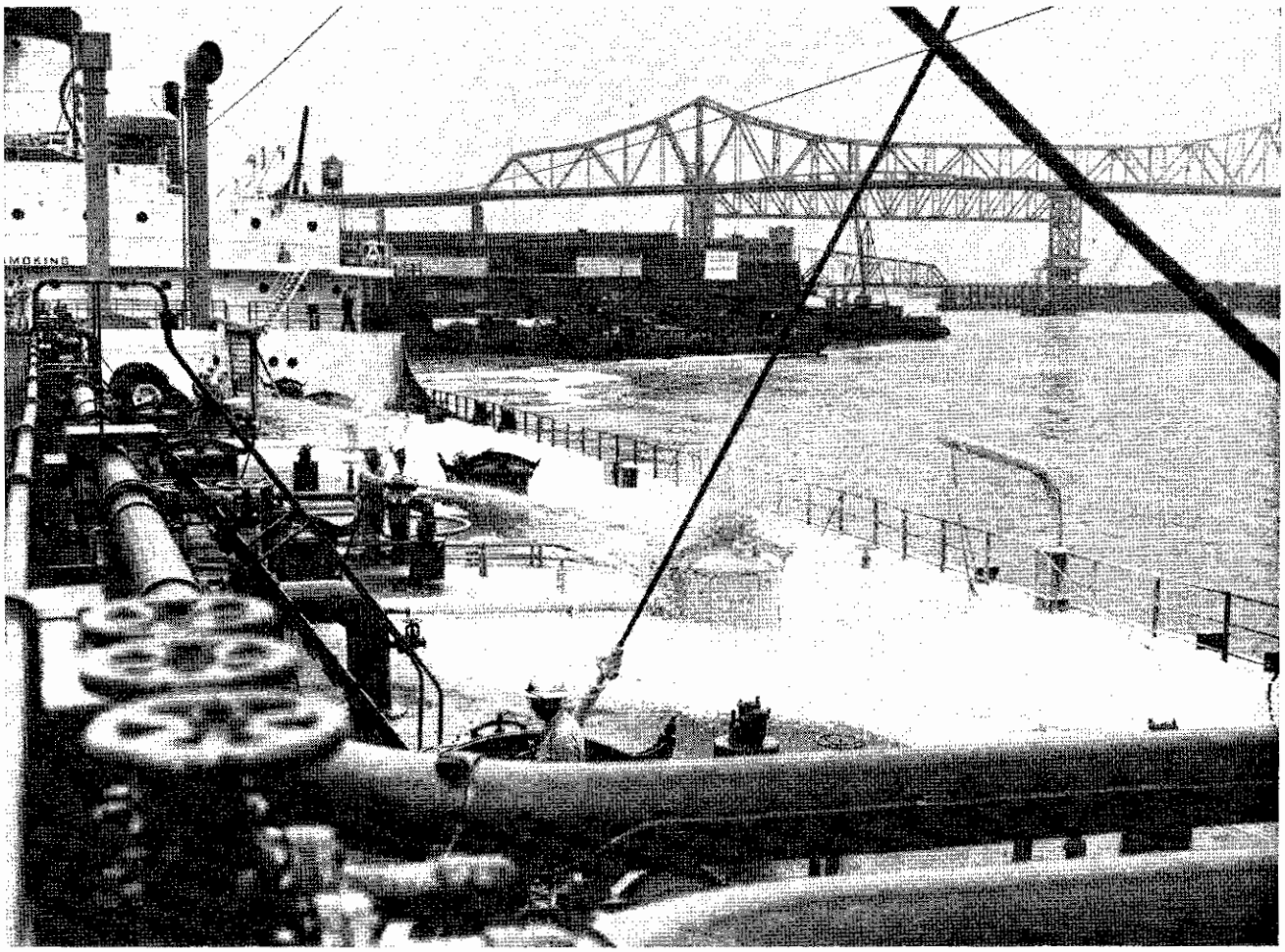


FIGURE 3

TANKER SAFETY PROBLEMS

By John D. Rogers



SHORTLY after the general alarm rang, the port side of the main deck amidships of the *Esso Gettysburg* was covered with a thick layer of foam during a simulated ship and dock fire drill at Bayway, N.J.

AFTER AN INSPECTION of one of our modern supertankers, embodying the experience of 75 years of tanker operation, one is tempted to hope that most, if not all, of our safety problems have been solved. They continue to exist, however, and it is the intent of this paper to comment on a few and to indicate how we in Esso Standard have attempted to meet them.

WE HAVE TO CONSIDER PEOPLE

First of all we have to consider people; ships' officers, seamen, oilers, firemen, cooks, and messmen. It is and will continue to be a never-ending problem to keep safety in the forefront of a ship's company at all times. We employ all of the time-tested procedures for this purpose—Ships' Safety Meetings, a Shore Safety Committee, posters, bulletin boards, articles in our house organ, circular letters, person to person discussion on shipboard and ashore, and on-the-job training. A full-time Safety Engineer inspects equipment, reviews accidents and recommends changes in procedure to improve safety. All these measures have brought results but they have not eliminated accidents and possibly never will. It would be difficult indeed to find an answer to the problem of the sailor who fell out of his bunk while having a nightmare and sustained a broken arm.

Eternal vigilance, nevertheless, will bring further progress. New ways of telling the story of safety must be devised. We are now holding a series of conferences with our officers at headquarters. An officer's responsibility as a supervisor is stressed and his cooperation in our safety work is sought in across-the-table conversation.

ON-THE-JOB TRAINING

On-the-job training can give a major assist to a safety program. Many shoreside establishments have regular training sessions for supervisors and other employees. This is scarcely practical in a fleet of 27 ships operating to many ports along the Atlantic and the Gulf. We, therefore, have to take the training program to

the ships and to the men. Several years ago, for example, qualified officer personnel made voyages on our tankers to explain fire-fighting techniques and demonstrate the use of fire-fighting equipment. The practical value of this course was recently reflected in the performance of one of our crews at Bayway, N.J. A ship and dock fire was simulated to test out the response of both ship and shore personnel on the sounding of an alarm. Our tanker crew put on a first-class performance which included an actual spread of foam on deck within minutes. We believe they were ahead of the shoreside people by a substantial margin.

SAFE NAVIGATION

On deck the age-old problem of safe navigation requires continued attention. Modern tankers are equipped with all the latest electronic aids to navigation. Among these devices are radar, loran, course recorders, improved depth indicators, and the radiotelephone.

It is our view that training in the use of radar and loran is absolutely essential for deck officers. Here again, in the belief that on-the-job training is the most effective for seagoing personnel, we arranged to have two experienced deck officers make trips on all of our U.S. flag Esso tankers to provide such training. In addition, many of our deck officers have attended one of the Maritime Administrations radar schools. It is pleasing to know that this effort is producing results. Esso deck officers are taking the Coast Guard's examination for radar observer endorsement in increasing numbers and it now appears likely that all of these men will be certified within a reasonable time ahead.

ABOUT THE AUTHOR

JOHN D. ROGERS is general manager of Esso Standard's marine department which handles the U.S.-flag tankers and the inland waterway operations for the domestic affiliates of Standard Oil Co. (N.J.). This operation was formerly conducted by the Esso Shipping Co., of which Mr. Rogers was executive vice president and director.

Early in his long company career, Mr. Rogers worked as a seaman on a tanker. He rose from ship operator to manager of the parent company's operations division before assuming the wartime loan assignment of chief tanker expediter of the Panama Canal.

After World War II, he served as joint general manager of the Esso Transportation Co., Ltd., in London and general manager of the marine department of the Standard Oil Co. of New Jersey.

Mr. Rogers is president of the American Merchant Marine Library Association, a director of the Maritime Association of the Port of New York and the American Merchant Marine Institute. He is a member of the Society of Naval Architects and Marine Engineers, the American Bureau of Shipping, the Navy League of the United States, and the Propeller Club of the Port of New York.

Mr. John D. Rogers, general manager of Esso Standard's marine department, developed some of the facets of tanker safety in his remarks to the National Safety Council meeting in March 1960 at the 30th annual convention and exposition of the Greater New York Safety Council.

In his talk, Mr. Rogers emphasized the consideration that must be given to the human side of the problem, on-the-job training, and the measures that have brought results in the reduction of accidents in the Esso fleet. The problems of navigational safety, pleasure boating, and engine room casualties were also reviewed. This article is reprinted by permission of the author and the National Safety Council. Ed.

The larger the tanker the greater the mass. When loaded with 38,000 deadweight tons of cargo, fuel, water and stores, a vessel of this class will have a total displacement of 50,000 tons, as compared to a similar figure of 22,000 tons for the T2 tanker having a deadweight carrying capacity of 16,500 tons. Realizing that our larger vessels presented us with special problems both in navigation and in safe mooring, we sought solutions in two area. One was educational and the other related to equipment.

SQUATTING ACTION

Failure to allow for the squatting action of a vessel when navigating in a confined channel can very easily result in bottom damage. The area of water in which a vessel is operating and her speed directly bear on the squat of a deep laden tanker.

In our U.S. Coastwise tanker trade narrow channels are familiar sights to our deck officers. For the guidance of Masters and pilots we prepared and published several informative articles on this subject and reproduced them in quantity to insure wide distribution. The data contained in these brochures has given our navigators an understanding of this phenomena that has proven to be most useful. A discussion of vessel squat is also included on the agenda for our Officer Conferences.

Water displacement by a large loaded tanker traveling through a narrow channel at an unrealistic speed can cause extensive damage to shoreside structures and craft moored thereto. Here again we have made an educational effort to alert our Masters and deck officers of the necessity of navigating inland waterways with caution and, when necessary, of proceeding at minimum speeds consistent with the maneuverability of their vessels. Our friends in the various pilotage services can be of material assistance to us in this direction by curbing their very understandable desire to complete their assignments in the shortest possible time.

Esso's U.S. flag tanker fleet trades almost exclusively in U.S. Coastwise services. Voyages are relatively short and our supertankers made as many as thirty round trips per year. Involved are at least 120 dockings and undockings under all manner of weather, current and tidal conditions. Fast loading and unloading time requires constant attention to mooring lines to prevent them from becoming too loose or too taut.

SURGING ACTION

Our ships are also subject to surging action created by passing vessels. We have an account of an incident that occurred to one of our 38,000 DWT tankers just after loading had been completed at a dock located in a basin adjacent to a narrow channel. This tanker started to move forward to the amazement of the watch on deck. Fortunately, fast action on the part of the ship's personnel prevented major damage to mooring equipment or a grounding.

Immediate contact with the engine room made it clear that there had been no unauthorized manipulation of the propulsion unit. An upbound tanker passed the slip in which our vessel was moored shortly after this incident occurred. It was concluded that water displacement by the upbound vessel had caused the unexpected movement of our vessel.

MOORING WINCHES

Consideration of these factors led us to the decision that, for the trade in which our vessels are engaged, it would be a sound investment to partially or fully equip our tankers of the 27,000 DWT class and up with mooring wires permanently stowed on steam-driven mooring winches. Small air drive capstans were installed at loading and discharging terminals to assist shore personnel in handling wires and to reduce mooring and unmooring time.

Consider the effect these mooring winches have on deck personnel. One seaman's effort is all that is required to tighten and slack off mooring wires at the highest loading and unloading rates. He does this by the simple act of opening the steam valve on each winch for a few seconds at a time. It is unnecessary for the Mate to take time out to round up a gang of sailors to handle mooring hawsers during the course of cargo handling operations. Eliminated also is the practice of

leaving hawsers on winches rather than mooring bits with consequent risk to personnel and damage to a winch caused by a sudden surge of the vessel. Admittedly nylon and polypropylene mooring lines mitigate the last-mentioned problem due to the ease with which they can be handled. Officer supervision and extra personnel would still be required and the stretching characteristics of these lines can give some cause for concern on supertankers. We are satisfied that wire mooring lines installed on our supertankers have added greatly to the safety of our larger vessels and of the crews with which they are manned, particularly when loading and unloading cargo at high rates.

RADIOTELEPHONE

The radiotelephone is rapidly developing as an important aid to navigation for East Coast shipping. On long inland passages information can be obtained regarding approaching traffic and an accurate determination made of the point at which a passing situation will occur. Under the auspices of the Committee for the Improvement and Development of the Philadelphia Port Area a very valuable experiment is underway with a single channel supplementary radiotelephone. Designed solely for short range communication between ships or between ships and rescue craft, this experiment, if proven successful, should find wide application and be of material assistance in achieving safe navigation on inland waterways.

WHISTLE LIGHT

Another area of attack on the problem of safe navigation is the amber "whistle light"—a light that comes on when the whistle is blown. Such a light is required on the Western rivers but it is optional on the high seas. An experimental installation has been made on one of our tankers and reports regarding its usefulness will be followed with great interest.

PLEASURE BOATING

One cannot discuss the subject of the hazards to big ship navigation without reference to a danger which is increasing year by year. The phenomenal growth of pleasure boating has resulted in new and difficult problems for Masters and pilots. Imagine the concern of the Master of a deeply laden tanker navigating on a channel only 400 feet wide, when he finds a number of small boats anchored in front of him. Often the occupants of the boats are busily engaged in hooking red snappers, or black bass, or catfish, and they are not easily moved. Or a Master finds that a boat race committee had laid out the Sunday afternoon race course across—rather than parallel to—a main ship channel. But complaints come in after he has sailed right through a fleet of small sailboats and completely disrupted the race. Here is another area for education in safety.

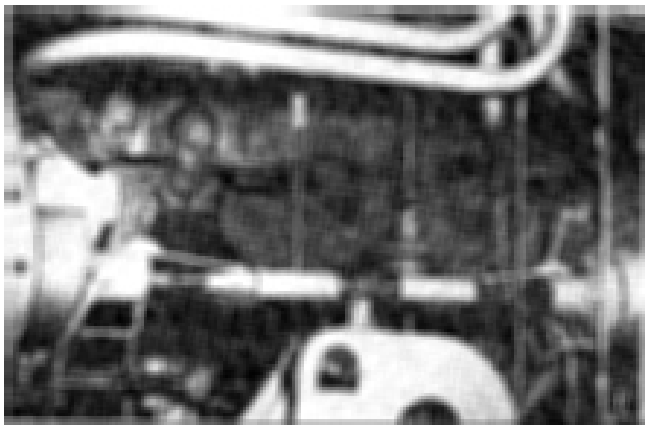
ON-THE-JOB TRAINING in the use of radar and loran is essential for deck officers. Additional training in radar is obtained through the Maritime Administration's radar schools. It is expected that all Esso deck officers will be certified by the U.S. Coast Guard as radar observers in the near future.

TANK COATING PROGRAM

A final word regarding the deck department. Because of the high rate of corrosion experienced on clean oil tankers we decided after many years of experimentation, that the application of coatings to the interior surfaces of the cargo tanks on our newer vessels would pay dividends in avoiding steel replacement costs. Substantial operational savings are being realized as byproducts of our coating program. Scale removal from large tanks is expensive and involves some risk to personnel that enter tanks on ballast voyages to prepare them for cargo. Since no rust forms in coated tanks they can be conditioned for cargo by machine washing or flushing tank bottoms. Entry into the tanks is largely confined to inspection. Gas-freeing for shipyard work is also simplified.

ENGINE ROOM CASULTIES

Engine room casualties resulting in extensive damage to boilers or machinery have been relatively infrequent on U.S. merchant ships in recent years. It has been our experience, however, that accidents do befall engine room personnel in about



ENGINE ROOM EMERGENCY procedures are simulated under actual operating conditions. Here, in the steering gear compartment, a senior engineer travelling on the ship as an instructor, demonstrates method of shifting control of the ship from the bridge to the after steering station.

the same frequency as on deck. When in a shipyard exceptional vigilance must be maintained by the engineer on watch to prevent accidents, not only to ship's people but to shipyard workers as well. Machinery may be adrift, floor plates lifted, and engine and boiler room spaces inadequately lighted. Several mechanical warning and safety devices have been supplied to our vessels for use at such times, as well as during normal operation when minor repair work is carried out.

Against the possibility that the good engine room casualty record might lead to a false sense of security, our Port Staff and senior repair people were asked if they had any suggestions to make in this area. They gave it as their view that an on-the-job educational and training program would be most beneficial, particularly for the engineers below the rank of first assistant. Unlicensed personnel also could be given some training.

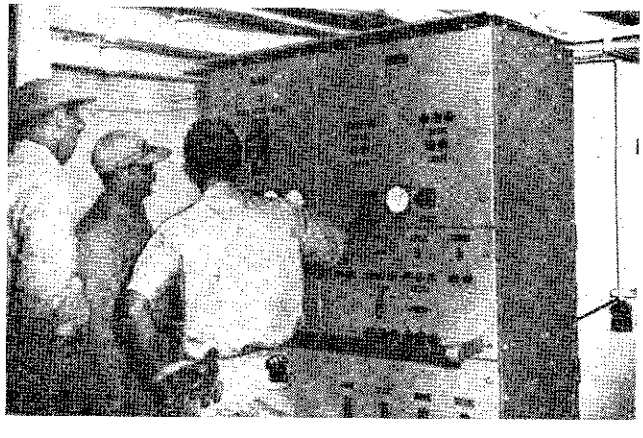
Accordingly, two highly competent senior engineers were selected out of the fleet and directed to make round trip voyages on our tankers to conduct this engine room emergency procedures program. They were instructed to review and, to the extent practical, actually demonstrate, always with the Master and Chief Engineer's approval, the procedures that should be followed in the event of failure or malfunctioning of equipment, or to carry out emergency orders from the bridge.

During the course of this program our instructors covered the operation of boilers, turbines, generators and auxiliaries. Automatic combustion control systems, and lubrication and compressed air systems, were thoroughly discussed. When reviewing steering gear failures, deck department personnel were invited to participate in the discussions. Joint participation of the two departments in this program also covered other situations and included an actual demonstration of the Williamson turn recommended if a man is lost overboard.

PRACTICAL DEMONSTRATIONS

These practical demonstrations, together wtih full discussion between the instructor and engineer officers, have, we believe, enhanced safety in the engine rooms of our tankers.

Today, more than ever before, the importance of economy in operation looms large. Safety, however, is one area in which retrenchment would not be the wisest course. Investments in safety bring high returns, not only in the avoidance of damage and lost time, but in the elimination of pain and suffering to personnel.



THE OPERATION of the emergency diesel generator is discussed during emergency procedures training course conducted on Esso tankers.

RELATIVE VERSUS TRUE

(*Continued from page 169*)

track, showing an apparent change in the relative bearings without any immediate evidence of the behavior of the true bearings. In figure 3, using true bearings, all that happens when your own ship changes course is that the pip changes its direction and speed. In neither figure 2 nor figure 3 can the true course and speed of the other vessel be determined directly from the motion of the pip.

Either method may be used by the navigator if he is not restricted in his choice by the type of equipment in use. He should be aware of the advantages of each of the two.

The most practicable method of plotting for merchant ship navigation with a gyro stabilized radar set is the relative plot using true bearings [1] as shown in figure 3. The important point in all cases is that he *knows how to plot.*

[1] Gyro stabilized display using true bearings should not be confused with TRUE MOTION radar. In TRUE MOTION radar additional electronic and mechanical components feed information to the radar so that the pips appear to move on an approximation of their true course and speed, the accuracy of which depends on the accuracy of the input information.

STANDING ORDERS

In view of the considerable interest in the subject of radar and its operating procedures voiced at the recent SOLAS Convention, and the publication of the "Radar Annex" to the Convention, the Coast Guard has solicited the Standing Orders and Radar Instructions for Deck Officers from various steamship companies. These will be printed from time to time in the PROCEEDINGS for information as a matter of general interest to our readers.

The following has been received from *Grace Lines:*

MASTER'S STANDING ORDERS

All of the Standing Orders listed below are to be read by each Deck Officer and signed on the abutting page to indicate he thoroughly understands each order prior to taking charge of his initial bridge watch.

These Standing Orders are to be supplemented each night with such orders as the Master feels are necessary under existing circumstances.

1. The Officer on Watch will never leave the Bridge at any time, day or night, unless properly relieved by the Captain or Licensed Deck Officer.

2. Give all passing vessels a wide berth. When circumstances are such that your vessel will be within three (3) miles of another vessel in open waters, in a meeting or crossing situation, the Master is to be notified as soon as such a situation is apparent.

3. Watch steering closely. Keep a sharp lookout. Make certain that each Lookout is thoroughly familiar with his duties and see that these men are alert at all times. Remember that a Lookout is to be assigned no other duties.

4. See that running lights are burning brightly from sunset to sunrise. Have Lookout man report same every half hour.

5. Have Lookout man report land, lights, objects or dangers to navigation via phone, giving description and location as accurately as possible by points. If vessel is not equipped with phone on bow, Lookout is to indicate land, lights, objects, dangers, etc., by striking ship's bell one (1) for starboard side—two (2) bells for port side—three (3) bells for ahead. It shall be the duty of each watch officer to satisfy himself that his Lookout men are familiar with the system of reporting.

6. Check and compare compasses every half hour, and after each change of course. Maintain compass comparison book. An azimuth is to be taken at least once each Watch at sea when possible and after each course change when *practicable.*

7. Officer on Watch must at all times know the ship's position, if in the least doubt as to the safety of the vessel, call the Master immediately. If equipped with Loran, and when in range ascertain position at least once every hour.

8. Position fix or dead-reckoning, course, date and time to be plotted on chart at the end of each watch. This is to be verified by the Officer relieving the Watch. If any doubt arises concerning this, the Captain is to be called immediately. The Course-Recorder Chart is to be dated and intialed at the end of each watch and synchronized with bridge time.

9. When visibility is reduced, or when it is anticipated that visibility may be reduced, by the approach of fog, fog banks, rain, snow, mist or other similar conditions restricting visibility, notify the Master and be governed by the applicable Rules of the Road.

When the circumstances require the Engine Room watch to be on Standby, the engine room telegraph will be rung to "Standby," the Engineer on Watch notified to reduce r.p.m.'s to maneuvering speed or less, clocks in wheelhouse and engine room synchronized, and the vessel thereafter steered by hand, as soon as practicable, synchronize clocks in chart room and course recorder and initial the recorder chart.

10. Course is never to be changed except by orders of the Captain, and/or, to avoid immediate danger, in which case change course to clear the danger and notify the Captain immediately.

11. When course is changed and vessel is steadied on the new course, report same to Master and then lay off this course and check same. The Course Recorder is then to be checked and synchronized as soon as practical.

12. In the event of heavy weather or rain, be sure that all hatches are closed and ventilators trimmed. Notify proper departments for the closing of open port holes.

13. Carpenter to report and file bilge soundings into the Bilge Sounding Book twice daily, 0800 and 1600 hours. Soundings are to be sighted and logged by the Bridge Watch Officer.

14. Noon position at sea to be turned in by the Officer on Watch.

15. Fire Patrol Watchmen or Watchman are to report to the Bridge between 2200 hours and 0600 hours per USCG Requirements applicable to your vessel.

16. In addition to using radar for navigation, ascertaining the position of other vessels, etc., the radar shall be used at all times during periods of reduced visibility in accord with posted Radar Standing Orders.

17. The vessel is to be steered by hand at all times when Engine order Telegraph indicates "Standby" when Steaming within 5 miles of Land, when within 3 miles of other vessels, and at all other times that the Master may direct.

RADAR STANDING ORDERS

1. RADAR: IS AND IS ONLY TO BE USED AS AN AID TO NAVIGATION. The fact that you have and must use the Radar instrument will not excuse any failure to comply with the requirements of the International, U.S. Inland and Pilot Rules and any applicable rules governing navigation in foreign ports and waters. Strict compliance with the Rules of Navigation is obligatory at all times.

2. Radar is for the FREE use of the ship's deck watch officers. IT MUST BE USED:

A. Whenever the Master or the deck watch officer deems it advisable.

B. When visibility is reduced, or where it is anticipated visibility may be reduced, including the approach toward or of fog banks, rain, snow or any other condition similarly restricting visibility.

C. While skirting or navigating in the vicinity of an area of reduced visibility, such as fog, snow, falling rain or any other condition similarly restricting visibility.

D. Sufficiently often to keep officers concerned thoroughly familiar with all aspects of Radar operation.

E. In circumstances or conditions not limited to operation in reduced visibility when in the judgment of the Master or Watch Officer, the safety of the vessel will be further assured by the use of the instrument.

3. "Pips" must be plotted whenever Radar is used. Plots are to be made on the maneuvering board, not on the scope. Permanent record of all plots is to be maintained and submitted to the Port Captain's office each voyage.

Determine extended "Pip" motion and the object's course and speed as quickly as possible.

Analysis of the extended "Pip" motion and "Pip" location should include simultaneous comparison of both true and relative bearings in order to avoid possible misinterpretation.

4. The Radar shall be operated at least 1 to 1½ hours every day to dry the transmitter equipment of any moisture which may have developed or otherwise accumulated during the preceding 24 hours. That daily duty is assigned to the deck officer in charge of the 4–8 watch. This is to be noted in Deck Log and Radar Log.

5. PRACTICE analyzing "pip" movement so that you will be completely proficient in putting into use the information that can be furnished to you by Radar in the regular course of navigation. Confidence in your obility to use and properly interpret the information disclosed by Radar can only be developed in PRACTICE. A crucial period, when a quick competent decision is necessary, is not the time to endeavor to develop confidence that you should have previously acquired through PRACTICE.

It is the duty of all watch and navigating officers to familiarize themselves with the proper use and operation of radar and analyses

of the information furnished by use of the Radar equipment. Proper use and operation of the equipment and analyses of information disclosed by the Radar shall be practiced by comparison of visual and radar observations. Comparison plottings of visual observations and bearings, etc., with those obtained by Radar and analyses of both will serve as a cross-check of your proficiency as a Radar analyst, and also as the best available check as to the efficiency and accuracy of the Radar equipment.

6. Whenever it appears that the Radar equipment has become inoperative or ineffective, the Master should in his discretion, under the circumstances then existing, have the instrument turned off. Appropriate entries must be made in the Deck and Radar Logs showing the date, hour and reason when its use is discontinued, and the date and hour when use is resumed, his whole explanations therefore.

Repairs to the Radar are to be made only in accordance with current FCC regulations.

7. Protect the scope face from as much light as possible.

8. Check scope orientation for TRUE and RELATIVE bearing accuracy frequency.

9. When in strange waters REMEMBER that in miles per inch of scope presentation, the 20 mile scale matches a 1:200,000 chart, the 8 mile scale a 1:80,000 chart, the 4 mile scale a 1:40,000 chart and the 2 mile scale a 1:20,000 chart. Direct comparison of charted versus scope presented objects may answer navigation problems which would otherwise be difficult to solve.

10. Whenever you're using the Short Range Scale for any considerable period, SWITCH TO THE LONG RANGE SCALES FREQUENTLY so that an object can't suddenly appear on the short range scale, leaving you with very little time to analyse the situation and to act on short notice. One of the basic functions of the Radar is to keep you from ever being "surprised"! Further remember to wait until short range presentation fades out before plotting and analyzing.

11. We have been supplied with a Radar Log which shall be maintained in all respects. Keep the Radar Log Book carefully. Note all discrepancies from "normal". The entries required to be made in the Operational Radar Log:

A. An entry is to be made for each watch during which the Radar is used:

B. The entry should include the following information:

(1) Date.
(2) Approximate time during the watch when the set was used.
(3) Location of the ship.
(4) State of the weather, sea and visibility.
(5) Use being made of the Radar.
(6) Hours on the time meter reading if the set was turned off during the watch.
(7) Any slight deficiency noted in the operation of the Radar.
(8) Signed by the Deck Watch Officer, with full name, not initials.

C. All work completed by a service engineer should be noted in this record, including the date, location of the ship when service is performed, full name of the engineer making the repair, and the number of the Radar endorsement to his telegrapher's licence.

12. Do not hesitate to ask questions or seek information to develop or amplify your knowledge of Radar or to obtain information concerning matters you do not understand in connection with Radar, its use or operation.

CALL ME IMMEDIATELY WHEN IN DOUBT
CALL ME IMMEDIATELY WHEN ANOTHER VESSEL'S C.P.A. WILL BE LESS THAN THREE (3) MILES

_____
Master

_____
Date

NEW EXECUTIVE SECRETARY

On September 1, 1960 Captain Benjamin D. Shoemaker, Jr., USCG, relieved Captain A. W. Wuerker, USCG, as Executive Secretary and Member of the Merchant Marine Council. A 1938 graduate of the Coast Guard Academy, Captain Shoemaker has served as Executive and Commanding Officer of various Coast Guard cutters.

Prior to his assignment as Executive Secretary, Merchant Marine Council, Captain Shoemaker was the Assistant Chief of The Merchant Vessel Inspection Division of the Office of Merchant Marine Safety at Coast Guard Headquarters. He has been Senior Inspector Personnel and Senior Inspector Materiel in the Marine Inspection Office, Long Beach and Officer in Charge of the Merchant Marine Detail, Yokohama.

The most recent duty prior to his arrival at Coast Guard Headquarters last year was as Commanding Officer of the CGC *Gresham* based in Alameda, Calif.

Captain Wuerker, the former Executive Secretary, retired from the Coast Guard on October 1, 1960.

UNITED STATES COAST GUARD

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

MVI
6 June 1960

Commandant's Action

on

Marine Board of Investigation; collision between the FV *Jane* and SS *Mormacpine*, sinking of the *Jane*, off Cape Flattery, Strait of Juan de Fuca, 27 September 1959 with loss of life

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.

Early on the morning of 27 September 1959 the American freight vessel *Mormacpine* en route San Pedro, Calif., to Seattle, Wash. was proceeding northward at 11.5 knots off the Washington coast. The master and second mate were on the bridge. At 0720 a fog bank was observed ahead about 4 miles away in the vicinity of Tatoosh Island. A lookout was posted on the bow and fog signals were commenced. The engine was placed on standby but no reduction in speed was made. The radar was on and appeared to be operating satisfactorily, showing a good presentation of land mass but no vessel targets were observed. At 0734 Tatoosh Island was abeam to starboard. At this point the vessel had entered the fog bank and visibility was between 500 and 1,000 yards. At 0746 with Tatoosh bearing 145° T 3 miles off, the master ordered right rudder to enter the Strait of Juan de Fuca. At this same time the lookout reported by phone to the master that he heard a whistle ahead. Immediately the engine was stopped and the master checked the radar which was on the 8-mile scale but observed no vessel targets. Approximately 1½ minutes later the lookout reported sighting a vessel 1,000 feet ahead fine on the starboard bow. This later proved to be the FV *Jane*. The *Jane* appeared to be underway with little or no way on and was heading across the bow of the *Mormacpine* from starboard to port. Upon receiving the report from the lookout the master ordered full astern on the engines. The rudder was already hard right. The response to the engine order was immediate but these maneuvers did not succeed in evading the *Jane* and at about 0755, with the *Mormacpine* making an estimated 3 to 4 knots through the water, her bow struck and holed the *Jane* on the port side in way of the forward end of the *Jane's* pilothouse.

The *Jane*, a 49-foot, wood hull, American fishing vessel with the master and four crew members aboard departed Neah Bay, Wash. at about 0600 en route to the fishing grounds near Destruction Island at the entrance to the Strait of Juan de Fuca. After clearing the harbor the vessel headed west at half speed—approximately 5 knots—into a 9-foot westerly swell. At about 0720 fog was encountered. The master came to the bridge, took the wheel and began sounding fog signals. Five minutes later speed was further reduced to 4 knots. Some time later the master ordered the stabilizers rigged to reduce the vessel's roll as the seas had increased. The man who had previously had the wheel and had remained in the pilothouse then went below to call two other crew members to assist. While waiting for the others the helmsman was standing on the fore deck acting as lookout and had been there 2 to 3 minutes when he heard the master shout "Look out!" Shifting his gaze from right to left the helmsman saw the bow of the *Mormacpine* bearing down on the port side of the *Jane* about 50 or 60 feet away and felt the engine of the *Jane* being reversed and the revolutions increased. Within seconds the collision occurred.

The *Mormacpine* was undamaged but the *Jane* was severely holed and after passing down the starboard side of the *Mormacpine* she sank about 3 minutes after the collision. The momentum of the *Mormacpine* carried her past the scene of the accident but the master took a bearing on the *Jane* before she disappeared in the fog. The *Mormacpine* then came about and in the meantime lowered her motor lifeboat to just above the water's edge. Returning to the scene only wreckage of the *Jane* was visible. Two survivors were observed to starboard and with the aid of heaving lines they were hauled in alongside No. 2 hatch where a jacob's ladder was rigged. John F. Murray, A.B., Z–403414, descended the ladder and although he was alternately submerged and raised above the surface of the water by the motion of the vessel he succeeding in assisting both men up the ladder to safety. A third survivor was rescued by the motor lifeboat. The master and fifth crew member were not recovered and are presumed dead.

REMARKS

Concurring with the Board it is considered that the principal cause of this collision was the failure of the *Mormacpine* to go at a moderate speed in the fog. In this connection there can be little doubt that undue reliance was placed on the fact that no vessel targets were observed on the radar and that the radar appeared to be working properly. While there is no evidence in the record to indicate whether or not any attempt was made to periodically shift the range scale as the Board pointed out, such procedure is often successful in detecting targets not visible on one range scale alone.

Although the Board concluded that no violation of any navigation rules or wrongful acts on the part of the *Jane* contributed to the collision the question of a proper lookout aboard the *Jane* is raised by the record. The crew member who was relieved at the wheel by the master indicated that he remained in the pilothouse until he went below to rouse the other deck crew members to help rig the stabilizers. When he returned topside he took position on the fore deck to act as lookout and within 2 or 3 minutes the collision occurred. Had he been out on deck well forward and away from any distractions prior to that time there remains the possibility that he might have heard the fog signal of the *Mormacpine* thereby providing additional time in which to take avoiding action.

The Board was also of the opinion that the use of a radar reflector aboard the *Jane* may have made her a more effective radar target. Considerable work and study have been and are presently going on in the field of radar reflectors, both in materials and design; however, recent

tests conducted by the Testing and Development Division of the Coast Guard indicate that the increase in radar detectability presently offered by this equipment is definitely limited and offers no assurance that vessels so equipped will be observed by radar in time to avoid collision or even that they will be observed at all. To the extent that the owners of small vessels, particularly those of nonmetalic construction, should be encouraged to employ any means which might improve radar detectability the recommendation of the Board in this regard is approved. At the same time, however, it should be publicized to all mariners that the greatest chance of avoiding collisions still lies in scrupulous adherence to the Rules of the Road.

Recognition of the commendable action on the part of John F. Murray, A.B. Z-403414 will be given.

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

J A. HIRSHFIELD,
Vice Admiral, U.S. Coast Guard
Acting Commandant

FOUR YOUNG MEN IN A BOAT

Compliments are extended this month to Captain John M. Johnston and the crew of MV *Kalewa* for the notable sighting and rescue of four youthful survivors from a disabled, sixteen-foot, open boat adrift twenty-three miles offshore near Ocean City, New Jersey on August 16th. The *Kalewa,* a 4,886-ton British freighter operated by the Elder-Dempster Lines Ltd., whose New York agent is the Booth American Shipping Corporation, was enroute from Baltimore to New York (via Delaware Bay) at the time. The *Kalewa* is a regular participant in the AMVER system.

As it happened, the Coast Guard lifeboat Station at Ocean City received a report that a sixteen-foot outboard motorboat with four boys aboard was overdue at about 10 p.m. on August 15th. The occupants were not known to be in peril and the report was a type which is extremely frequent at this time of year. Probably eight of ten such reports result in finding the missing craft safely moored at some other pier—when the operators failed to notify all those concerned about their safety. In many other cases disabled boats are found in tow by private craft, and, in a very appreciable number of others, assistance by a Coast Guard patrol boat is given. In this particular case an alerted patrol boat went scouting through an area frequented by hundreds of similar craft 15 minutes after the report. A second patrol boat joined in the search about one and a half hours later. There being no results by 5 a.m., a Coast Guard amphibious plane took off at daybreak, but found the visibility too poor throughout the probability area and returned to base. At 6 a.m. a third patrol boat joined the search, which now covered an extensive area of coastal waters. The AMVER plot was not used as it was considered highly improbable that the missing small boat would be in the shipping lanes.

Thus it was at 9 a.m. when *Kalewa,* unaware of anyone missing, in a one mile surface visibility and a 15 knot NE wind, sighted the disabled craft about 23 miles off the New Jersey coast! Captain Johnston turned the *Kalewa* and hove to in position to recover the four uninjured occupants and their boat. This took about 45 minutes whereupon the master advised Coast Guard New York.

The young men told Captain Johnston they had seen other merchant vessels during the early morning hours but were unable to attract attention which upset them considerably. We observe that it is rather common to relatively inexperienced sailors to see a large ship from a small boat—so huge and imposing even at a distance—and to conclude that their own craft is equally visible to those on the ship. Very likely, boating safety would be greatly improved if more sailors realized how extremely difficult it is to sight a sixteen-foot open boat at some distance in anything but a glass-calm sea.

We salute the *Kalewa's* alert lookout!

FOUR YOUNG SURVIVORS and their 16 ft. outboard motorboat. They were picked up by the MV *Kalewa* 23 miles off the coast of southern New Jersey after being adrift about 11 hours.

MARITIME SIDELIGHTS

The Maritime Administration has accepted a bid of $3.2 million made by the American President Lines for the passenger ship *Leilani*. After extensive conversion, APL plans to operate the vessel as the SS *President Roosevelt* in the trans-Pacific trade, according to reports in the Maritime Press.

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The Port of Long Beach, Calif. has concluded its biggest cargo year with 10,282,412 tons of freight moving across the dock during the fiscal year 1959–60. This was the first time that the Port's cargo volume for one year exceeded 10 million tons, nearly a million tons better than the total for fiscal 1958–59.

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Stricter enforcement of the law against sportsmen who use the channel entries into New York Harbor as their weekend fishing grounds has been ordered by harbor officials according to an article in the *New York Times*. Col. Charles M. Duke, New York District Engineer for the Army Corps of Engineers, stated that the operator of any vessel not heeding warnings to stay clear of the main channels will be prosecuted. Fines for such violations range from $50 to $250 and imprisonment from thirty days to six months.

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The old nagging problem of supplying enough fresh mint leaves for passengers' mint juleps has apparently been solved by the inland cruising steamer *Delta Queen*. A flat bed of growing mint is to be put near the big paddle wheel where it will automatically receive a continuous splashing of river water.

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The first comprehensive account published in several years on how tramp vessels are employed demonstrates that the Liberty ship is still much in evidence in world commerce.

A survey conducted by W. G. Weston Ltd., London shipping analysts, showed that 25 percent of the tonnage now employed as world tramps were Liberty type vessels.

According to an article in the Journal of Commerce, Blohm & Voss AG, of Hamburg, will cooperate with Deutsch Babcock & Wilcox Dampfkessel-Werke AG, of Oberhausen, in designing a gas-cooled reactor for ship propulsion.

It is understood the two companies intend to develop a 20,000 hp. plant. Experimental work and trial runs will require about two years.

This latest corporate combination brings to four the number of such units working on an efficient ship's reactor.

The others are Gesellschaft für Kernenergieverwertung in cooperation with International Atomreaktorbau GmbH (Interatom), and DEMAG AG of Duisburg. Also the AEG jointly with Deutsche Werft of Hamburg and the Siemens group together with Howaldts-Werke.

A gas cooled reactor is considered particularly suitable for the propulsion of ships because of its high efficiency and safety.

Temperatures obtainable in a gas-cooled reactor are known to have a high degree of thermodynamic efficiency, and thus mean lower fuel consumption.

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A plan for diverting water from James Bay, a southern appendage of Hudson Bay, into the Great Lakes has been advanced recently by a Canadian mining engineer, Thomas W. Kierans. The plan calls for reversing the flow of the Harricanaw River by pumping its waters over the drainage divide so that it would flow into Georgian Bay and Lake Huron via the French River. A system of pumping stations, dams and locks would be required to carry out the project, which reportedly could contribute more than 25,000 cubic feet of water per second to the Great Lakes. Cost of the project is estimated at $1.8 billion.

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The MV *United States*, world's most powerful river towboat, has logged its billionth ton-mile of service. (The ton-mile, a standard measure of transportation service, is one ton moved one mile). The 8,500 hp. Federal Barge Lines towboat has been in operation 438 days. Its largest tow consisted of 42 barges and 35,800 tons of freight. This was the equivalent of 716 railroad freight cars.

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Radiological monitoring equipment will be provided for new freighters of the American Merchant Marine, it was announced by Maritime Administration.

The monitoring kit, consisting essentially of a Geiger counter, survey meter, and phosphor glass dosimeters with reader, will be provided by the Office of Civil Defense Mobilization and will be used to complement the existing requirements for provision of countermeasure washdown systems on new construction. Washdown systems to counteract radioactive fallout contamination are required as commercial equipment on all new general purpose dry cargo ships built with construction-differential subsidy.

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HARBOR SAFETY

A concerted effort to improve navigational aids and operating safety on San Francisco Bay and adjacent waters through channeling the views of all users to appropriate State and Federal agencies, and by a public education program, was announced by John R. Wagner, President of the Marine Exchange and Vice President of the Pacific Far East Line, Inc. A regional harbor navigation committee has been formed under the chairmanship of Captain John D. Knox.

At a recent meeting the committee members agreed to study the possibilities of a harbor radar and communications system. If this study is favorable, recommendations will be made on how to set up such an installation.

Participating in the new program are all maritime interests—commercial and yacht harbors, pleasure boating groups, steamship and tug operators, bar and inland pilots, the California State Board of Pilot commissioners and commercial and sports fishing organizations. U.S. Coast Guard and Navy personnel will attend as observers.

nautical queries

Q. Does adjusting a magnetic compass increase or decrease its sluggishness?

A. The magnetic compass when used on a steel ship must be so corrected for the ship's magnetic conditions that its operation would be the same as if it were on a nonmagnetic ship. Ship's magnetic conditions create deviations of the magnetic compass, as well as sectors of sluggishness and unsteadiness. Deviation is defined as deflection of the card (needles) to the right or left of the magnetic meridian. Adjustment of the compass is the arranging of magnet and soft iron correctors about the binnacle so that their effects are equal and opposite to the effects of the magnetic material in the ship, thus reducing the deviations and eliminating the sectors of sluggishness and unsteadiness.

Q. Does the heeling magnet, once adjusted, require change as the vessel sails from one magnetic latitude into another?

A. The heeling magnet, even though once adjusted, requires change as the vessel sails from one magnetic latitude to another because the heeling magnet corrects not only for the permanent vertical magnetism of the vessel, but also for the vertical induced magnetism as well.

Q. In adjusting the magnetic compass, is it best to place fewer magnets very close to the compass or more magnets further away from the compass?

A. It is best to provide more magnets further away as this gives a more symmetrical field at the compass.

Q. If a Flinders bar is used in the binnacle, will changing the heeling magnet change the deviation on an east or west heading of the vessel?

A. A change in the heeling magnet on a compass fitted with a Flinders bar will probably change the error on an east or west heading due to induction in the Flinders bar from the heeling magnet changing as the magnet is lowered or raised.

Q. On crossing the magnetic equator is it necessary to invert the Flinders bar in its holder?

A. As a Flinders bar in good condition has only induced magnetism and no permanent magnetism, it is unnecessary to invert the bar in its holder.

Q. If the length of Flinders bar used is changed is it necessary to revise the position of the quadrantal sphere correctors?

A. If the length of Flinders bar is changed, it is usually necessary to revise the position of the quadrantal spheres because the Flinders bar also acts as a small –D (quadrantal) corrector as well as a corrector for vertical induced effects.

Q. How would you correct easterly quadrantal deviation on a NE heading?

A. If there are no spheres on the binnacle, place spheres athwartships.

If there are spheres at athwartships position, move spheres toward compass or use larger spheres.

If there are spheres in a fore and aft position, move spheres outward or remove.

Q. Describe the proper order of procedure for compass adjustment.

A. 1. Place all deck gear near the compass in normal operating position and be sure the degaussing coils are properly secured. Check the lubber's line, centering of the compass bowl, and the quadrantal spheres and Flinders bar for residual magnetism.

2. Place the Flinders bar by computation or estimate (on initial adjustment), or change its amount if previous history indicates change is desirable.

3. Place the quadrantal spheres by estimate (on initial adjustment).

4. Place the heeling magnet with red end up in north magnetic latitude, and lower to the bottom of the tube, unless better information is available.

5. Correct for permanent magnetism on two adjacent cardinal magnetic headings, using permanent magnets, and halve the deviations on opposite headings.

6. Correct the position of the quadrantal spheres on an intercardinal heading and halve the deviation on an adjacent intercardinal magnetic heading.

7. Record the corrector positions, secure the binnacle, swing for residual deviations, and prepare a deviation table.

8. Energize the degaussing circuits, repeat the swing for residual deviations, and enter them on the deviation table.

AMENDMENTS TO REGULATIONS

[EDITOR'S NOTE.—The following regulations have been promulgated or amended since the last issue of the PROCEEDINGS. A complete text of the regulations may be found in the Federal Register indicated at the end of each article. 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

SUBCHAPTER E—LOAD LINES

[CGFR 60–52]

PART 43—FOREIGN OR COASTWISE VOYAGE

Subpart 43.40—Zones and Seasonal Areas and Miscellaneous Requirements

WINTER SEASONAL ZONE FOR THE NORTH PACIFIC OCEAN

The description of the winter seasonal zone for the North Pacific Ocean has been revised to agree with the Load Lines Modification of Annex II of the International Load Line Convention of July 5, 1950 (TS 858; 47 Stat. 2228), which was proclaimed by the President of the United States of America in a Proclamation dated July 8, 1959 (TIAS 4266), and stating this modification entered into force on July 13, 1957.

§ 43.40–1 Boundaries of the zones and seasonal areas.

(a) The southern boundary of the northern "winter seasonal" zone is a line drawn from the east coast of North America along the parallel of latitude 36° N. to Tarifa, in Spain; from the east coast of Korea along the parallel of latitude 35° N. to the west coast of Honshu, Japan; from the east coast of Honshu along the parallel of latitude 35° N. to longitude 150° W., and thence along a rhumb line to the west coast of British Columbia at latitude 55° N., Fusan (Korea) and Yokohama to be considered as being on the boundary line of the northern "winter seasonal" zone and the "summer" zone.

(Federal Register Document 60–7158; Filed Aug. 1, 1960, and printed Aug. 2, 1960)

TITLE 46—SHIPPING

Chapter I —Coast Guard, Department of the Treasury

[CGFR 60–50]

INSPECTION OF PASSENGER VESSELS (INCLUDING PUBLIC NAUTICAL SCHOOL SHIPS) USING GROSS TONNAGE CRITERION

The basic purpose of the passenger vessel-inspection laws administered by the Coast Guard is to promote safety of life and property. The regulations in this document are intended to clarify the application to passenger vessels of the vessel-inspection regulations in this chapter. These laws and regulations take into account the passenger vessel's physical size, construction, and equipment, as well as its intended service on routes or waters on which it is desired to be operated or navigated, which are indications of the hazards to which such vessel may be subjected. The Commandant's determinations in this respect for a particular passenger vessel are stipulated in a certificate of inspection which states certain terms and conditions governing such vessel when in operation.

The extent and scope of certain requirements are determined by the use of gross tonnage as an indication of vessel size and specific conditions are applicable when a vessel is over specific gross tonnages. Therefore, the gross tonnage of a passenger vessel is one criterion for invocation of safety requirements, including manning. Relative size has been found to have definite importance when safety standards must be applied.

On occasion the gross tonnages of passenger vessels have been drastically reduced by placement of openings or hatches in the sides and decks, by declaring certain spaces to be "water

CASUALTIES TO VESSELS—OTHER THAN PLEASURE VESSELS—FISCAL YEAR 1960

1 July 1959–30 June 1960

	Groundings	Foundering, capsizings, sinkings	Collisions with vessels	Collisions with objects other than vessels	Fires and explosions	Heavy weather damage	Material failure	Cargo damage, no damage to vessel	Undetermined or insufficient information	Casualty not otherwise classified	Total
Number of Vessel Casualties	473	195	379	475	227	20	195	7	1	16	1,988
Number of Vessels Involved	530	241	1,031	613	244	20	201	7	1	16	2,904
Number of Inspected Vessels Involved	304	27	334	311	68	17	153	3	0	9	1,226
Number of Uninspected Vessels involved	226	214	697	302	176	3	48	4	1	7	1,678
Types of Vessels Involved Passenger:											
Vessels over 65'—Inspected	8	0	9	15	3	0	4	0	0	1	40
Small Vessels—Inspected	11	12	19	8	16	0	2	0	0	1	69
Freight:											
Vessels—Inspected	195	5	124	190	28	16	106	3	0	6	673
Barges—Inspected and Uninspected	30	30	136	70	6	1	5	3	0	0	281
Tank:											
Ships	72	2	57	55	6	1	39	0	0	1	233
Barges	17	8	122	43	14	0	2	0	0	0	206
Public	0	0	17	1	0	0	1	0	0	0	19
Towing:											
Inspected	1	0	3	0	1	0	0	0	0	0	5
Uninspected	78	63	270	169	35	1	12	1	0	0	629
Fishing (Commerical)	93	86	89	26	111	1	21	0	1	4	432
Motorboats (Commercial) up to 65' in length uninspected	12	10	23	12	4	0	1	0	0	1	63
Foreign Flag	6	1	88	9	0	0	0	0	0	0	104
Miscellaneous	7	24	74	15	17	0	7	0	0	2	146
Property damage:											
Excess $1,500	209	179	465	379	208	19	168	6	1	12	1,641
Vessels totally lost:											
Inspected	3	6	0	1	12	0	0	0	0	0	22
Uninspected	28	84	13	9	76	0	2	0	1	1	214
Lives Lost in Vessel Casualties:											
Passengers:											
Inspected	0	3	0	0	0	0	0	0	0	0	3
Uninspected	0	1	1	0	0	0	0	0	0	0	2
Crew Members:											
Inspected	0	11	0	0	10	0	1	0	0	0	22
Uninspected	7	65	9	1	15	0	2	0	1	1	101
Longshoremen/Shore Workers:											
Inspected	0	0	0	0	8	0	1	0	0	0	9
Uninspected	0	0	0	0	2	0	3	0	0	0	5
Others:											
Inspected	0	0	0	0	1	0	0	0	0	0	1
Uninspected	0	1	6	1	1	0	1	0	0	0	10
Injured and Incapacitated over 72 hours:											
Passengers Inspected	1	0	2	0	0	1	0	0	0	0	4
Passengers Uninspected	0	1	3	0	0	0	0	0	0	0	4
Crew Inspected	0	0	1	0	26	10	1	0	0	0	38
Crew Uninspected	4	1	16	3	36	0	1	0	0	0	61
LS/SW Inspected	0	0	0	0	7	0	5	0	0	0	12
LS/SW Uninspected	0	0	0	0	2	0	1	0	0	0	3
Others Inspected	0	0	0	0	1	0	0	0	0	0	1
Others Uninspected	0	0	0	1	1	0	0	0	0	4	6
Number of Casualties due directly to personnel fault:											
Inspected	94	4	93	77	14	0	10	0	0	3	295
Uninspected	83	11	131	66	19	0	1	0	0	1	312

Deaths not Involving Casualty to vessel:

Natural Causes	170
Homicide	4
Suicide	29
Disappearance and Undetermined	25
Personal accidents	154

ballast spaces," by cutting of openings in deckhouses, or by other devices so that the final gross register tonnages as assigned by the Bureau of Customs, Department of the Treasury, no longer reflect true descriptions of the physical sizes of such vessels. Where this occurs, the intent of the passenger vessel regulations is vitiated and their purpose is frustrated. In one recent case a steam vessel with a normal gross tonnage of over 1,000 was converted to diesel power, and through the adaption of certain spaces with piping, pumps, and so forth, and a claim that such spaces were "water ballast spaces," together with the cutting of openings in deckhouses, the owner was enabled to reduce the vessel's gross register tonnage to below 90. Obviously, for the purpose of safety, the application of passenger vessel requirements must be according to the relative physical size of the vessel rather than such an artificially contrived gross register tonnage.

The Commandant has a responsibility and a duty to obtain a correct and uniform administration of the vessel-inspection regulations (R.S. 4403, as amended, 46 U.S.C. 372). The passenger vessel regulations in Subchapters H (Passenger Vessels), P (Manning of Vessels), R (Nautical Schools), or T (Small Passenger Vessels) in 46 CFR Chapter I, as well as referenced requirements in other subchapters, are applied in accordance with a concept of safety of a passenger vessel as applicable to a particular vessel of a relative size. For a passenger vessel where reduction of gross tonnage is attained so that the final gross register tonnage as assigned by the Bureau of Customs is no longer a valid criterion for the invocation of safety requirements based on the relative physical size of the vessel, the Commandant will consider such vessel to be of a size as if such reductions had not been granted. The determination that the gross register tonnage of a passenger vessel does not reflect the correct relative physical size of the passenger vessel shall be initially decided by the Commandant. The parties involved will be informed of this determination. The Commandant will direct that such a passenger vessel subject to Coast Guard certification, before being permitted to operate, shall comply with the requirements of the regulations for vessels of its relative size. Reference to such requirements may be also made by appropriate endorsements or notations placed on and made a part of such vessel's certificate of inspection so that such vessel will be in compliance and maintained in accord with the concept of safety of passenger vessels as expressed in the vessel-inspection laws and implementing regulations for passenger vessels.

This Coast Guard policy shall apply to passenger vessels subject to certification by the Coast Guard. It is not intended to apply this policy to passenger vessels currently holding valid certificates of inspection until one of the following changes may occur: (1) At the time plans or drawings are submitted for approval for a material alteration to an existing vessel, or for conversion of a vessel to a passenger vessel; or (2) at the time the vessel is readmeasured; or (3) at the time a request is submitted for the changing of service or route of a passenger vessel when such change increases or modifies the general requirements or increases the hazards to which it might be subjected. A determination as to the applicable regulations will be made at the time plans or drawings are submitted for approval of new construction as well.

Because the regulations in this document describe a Coast Guard policy with respect to the application of vessel-inspection and navigation laws and implementing regulations to passenger vessels, and in order to have a uniform administration of passenger vessel requirements, it is hereby found that the provisions of the Administrative Procedure Act (respecting notice of proposed rule making, public rule making procedures thereon, and effective date requirements thereof) do not apply.

SUBCHAPTER H—PASSENGER VESSELS

PART 70—GENERAL PROVISIONS

Subpart 70.05—Application

Subpart 70.05 is amended by adding a new § 70.05–20 reading as follows:

§ 70.05–20 Gross tonnage as a criterion for requirements.

(a) The regulations in this subchapter, as well as referenced requirements in other subchapters in this chapter, take into account the passenger vessel's size, construction, and equipment, as well as its intended service on the routes or waters on which it is desired to be operated or navigated, which are indications of the hazards to which such vessel may be subjected. The Commandant's determinations in this respect for a particular passenger vessel are stipulated in a certificate of inspection, which states certain terms and conditions

PROCLAMATION 3361

FIRE PREVENTION WEEK, 1960

By THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

WHEREAS preventable, destructive fires continue to be a major cause of human suffering and economic waste in communities throughout the Nation; and

WHEREAS intelligent and determined individual and cooperative action can reduce in great measure this needless waste of our country's resources:

NOW, THEREFORE, I, DWIGHT D. EISENHOWER, President of the United States of America, do hereby designate the week beginning October 9, 1960, as Fire Prevention Week.

I call upon our people to promote programs for the prevention and control of fires; and I urge State and local governments, the American National Red Cross, the Chamber of Commerce of the United States, and business, labor, and farm organizations, as well as schools, civic groups, and public-information agencies, to share actively in observing Fire Prevention Week. I also direct the appropriate agencies of the Federal Government to assist in this national effort to reduce the loss of life and property resulting from fires.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Seal of the United States of America to be affixed.

DONE at the City of Washington this twenty-ninth day of July in the year of our Lord nineteen hundred and sixty, and of the Independence of the United States of America the one hundred and eighty-fifth.

[SEAL]

DWIGHT D. EISENHOWER

By the President:
CHRISTIAN A. HERTER,
Secretary of State.

governing such vessel when in operation.

(b) In applying the laws and regulations to passenger vessels, one criterion for invocation of safety standards is the description of passenger vessels by relative size in gross tons. When it is determined by the Commandant that the gross register tonnage for a particular passenger vessel, which is attained by exemptions, reductions, or other devices in the basic gross tonnage formulation, will circumvent or be incompatible with the application of specific safety requirements in the passenger vessel regulations for a vessel of such physical size, the Commandant shall prescribe the regulations to be made applicable to such vessel.

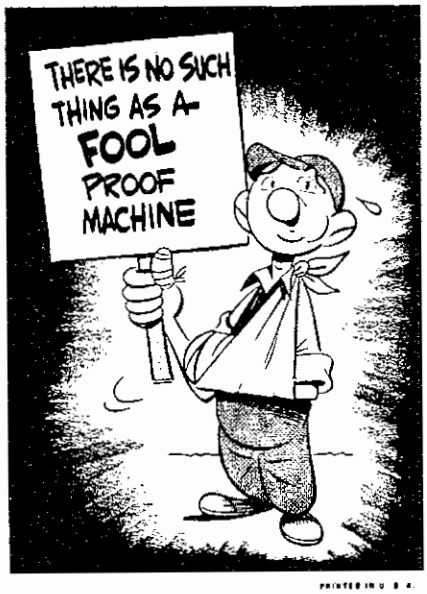
(c) When the Commandant determines that the gross register tonnage is not a valid criterion for the invocation of safety requirements based on relative size, the parties involved will be informed of the determination and of the regulations applicable to such passenger vessel, and before being permitted to operate such vessel, compliance therewith shall be required. Endorsements or notations on the passenger vessel's certificate of inspection may be made as appropriate.

SUBCHAPTER P—MANNING OF VESSELS

PART 157—MANNING REQUIREMENTS

Subpart 157.15—Manning Requirements

Section 157.15–1 is amended by adding a new paragraph (b) reading as follows:



§ 157.15–1 Complement required by certificate of inspection.

* * * * *

(b) One of the criteria used for invocation of manning standards is the description of passenger vessels and public nautical school ships by relative sizes in gross tonnages. When it is determined under § 70.05–20 or § 167.01–8 of this chapter that a particular vessel has a Bureau of Customs' assigned gross register tonnage which is not indicative of the relative physical size of the vessel, the manning shall be that applicable to a vessel of the greater relative size.

SUBCHAPTER R—NAUTICAL SCHOOLS

PART 167—PUBLIC NAUTICAL SCHOOL SHIPS

Subpart 167.01—General Provisions

Subpart 167.01 is amended by inserting a new § 167.01–8 reading as follows:

§ 167.01–8 Inspection of school ships using gross tonnage criterion.

(a) One of the criteria used for invocation of safety standards is the description of school ships by relative sizes in gross tonnages. When it is determined in accordance with § 70.05–20 of this chapter that a particular school ship has a Bureau of Customs' assigned gross register tonnage which is not indicative of the relative physical size of the vessel, the requirements in this part and the manning shall be that applicable to a vessel of the greater relative size.

SUBCHAPTER T—SMALL PASSENGER VESSELS (NOT MORE THAN 65 FEET IN LENGTH)

PART 175—GENERAL PROVISIONS

Subpart 175.05 is amended by adding a new § 175.05–15 reading as follows:

§ 175.05–15 Gross tonnage as a criterion for requirements.

(a) The regulations in this subchapter, as well as referenced requirements in other subchapters in this chapter, take into account the passenger vessel's size, construction, and equipment, as well as its intended service on the routes or waters on which it is desired to be operated or navigated, which are indications of the hazards to which such vessel may be subjected. The Commandant's determinations in this respect for a particular passenger vessel are stipulated in a certificate of inspection, which states certain terms and conditions governing such vessel when in operation.

(b) In applying the laws and regulations to passenger vessels, one criterion for invocation of safety standards is the description of passenger vessels by relative size in gross tons. When it is determined by the Commandant that the gross register tonnage for a particular passenger vessel, which is attained by exemptions, reductions, or other devices in the basic gross tonnage formulation, will circumvent or be incompatible with the application of specific safety requirements in the passenger vessel regulations for a vessel of such physical size, the Commandant shall prescribe the regulations to be made applicable to such vessel.

(c) When the Commandant determines that the gross register tonnage is not a valid criterion for the invocation of safety requirements based on relative size, the parties involved will be informed of the determination and of the regulations applicable to such passenger vessel, and before being permitted to operate such vessel, compliance therewith shall be required. Endorsements or notations on the passenger vessel's certificate of inspection may be made as appropriate.

(Federal Register Document 60–7733; Filed August 17, 1960, and printed August 18, 1960)

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 August 16, 1960 and August 25, 1960 (CGFR 60–55), August 31, 1960 (CGFR 60–59). Copies of these documents may be obtained from the Superintendent of Documents, Washington 25, D.C.]

ARTICLES OF SHIPS' STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from 1 August to 31 August 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 Enequist Chemical Co., Inc., 100 Varick Ave., Brooklyn 37, N.Y., Certificate No. 441, dated 23 August 1950, S.W. 12.

The Enequist Chemical Co., Inc., 100 Varick Ave., Brooklyn 37, N.Y., Certificate No. 442, dated 23 August 1960, B–C–6.

The Enequist Chemical Co., Inc., 100 Varick Ave., Brooklyn 37, N.Y., Certificate No. 443, dated 23 August 1960, SOOTKLENE.

The Enequist Chemical Co., Inc., 100 Varick Ave., Brooklyn 37, N.Y., Certificate No. 444, dated 23 August 1960, GRE-SOLV.

Falcon Corp., 78 Middagh St., Brooklyn 1, N.Y., Certificate No. 445, dated 24 August 1960, CALFONEX FORMULA #78-A.

Astor Supply Co., Inc., 140 Perry St., New York 14, N.Y., Certificate No. 446, dated 25 August 1960, ASTOR BUFFABLE FLOOR FINISH.

Astor Supply Co., Inc., 140 Perry St., New York 14, N.Y., Certificate No. 447, dated 25 August 1960, ASTOR FORMULA #214.

Astor Supply Co., Inc., 140 Perry St., New York 14, N.Y., Certificate No. 448, dated 25 August 1960, ASTOR GIANT CLEANER.

AFFIDAVITS

The following affidavits were accepted during the period from 15 July 1960 to 15 August 1960:

Donnell Hydraulic Co., Highway U.S. 20, Marengo, Ill., VALVES.

A. O. Smith Corp., Smith-Erie Div., 1602 Wagner Ave., Erie 6, Pa., VALVES AND FITTINGS.

Duwamish Shipyard, Inc., Seattle, Wash., BOLTING.

Racine Foundry & Mfg. Co., 6463 E. Warren St., Detroit 7, Mich., CASTINGS.

FUSIBLE PLUGS

The regulations prescribed in Subpart 162.014, Subchapter Q Specifications, require that manufacturers submit samples from each heat of fusible plugs for test prior to plugs manufactured from the heat being used on vessels subject to inspection by the Coast Guard. A list of approved heats which have been tested and found acceptable during the period from 15 July 1960 to 15 August 1960 is as follows:

The Lunkenheimer Co., Cincinnati 14, Ohio, Heats Nos. 628, 629, 630, 631, 632 and 633.

Changes Published During August 1960

The following publications have been modified by Federal Register:

CG-176 Federal Register, August 2, 1960.

CG-256, CG-268, CG-269, and CG-323 Federal Register, August 18, 1960.

CG-190 Federal Registers, August 16, 1960 (20 cents), August 25, 1960, and August 31, 1960 (20 cents).

MARINE SAFETY PUBLICATIONS AND PAMPHLETS

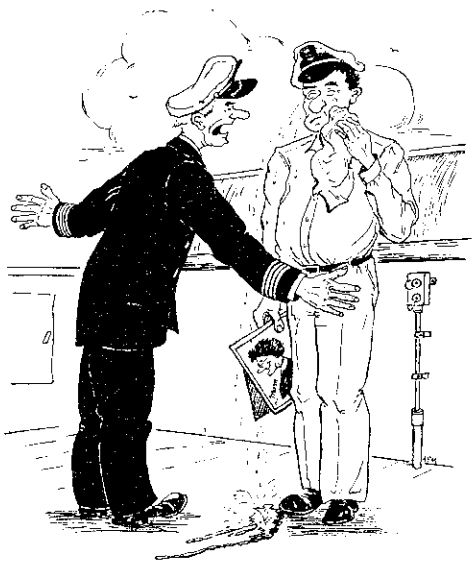
The following publications and pamphlets are available and may be obtained upon request from the nearest Marine Inspection Office of the United States Coast Guard. The date of each publication is indicated in parenthesis following its title. The dates of the Federal Registers affecting each publication 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, 8-2-60.
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, 6-21-60, 8-16-60, 8-25-60, 8-31-60.
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, 7-8-60.
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, 7-29-60.
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, 8-18-60.
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, 6-25-60, 6-29-60, 7-14-60, 7-29-60.
268	Rules and Regulations for Manning of Vessels (10-2-59). F.R. 12-18-59, 3-17-60, 56-60, 8-18-60.
269	Rules and Regulations for Nautical Schools (3-1-60). F.R. 3-30-60, 8-18-60.
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, 8-18-60.
329	Fire Fighting Manual for Tank Vessels (4-1-58).

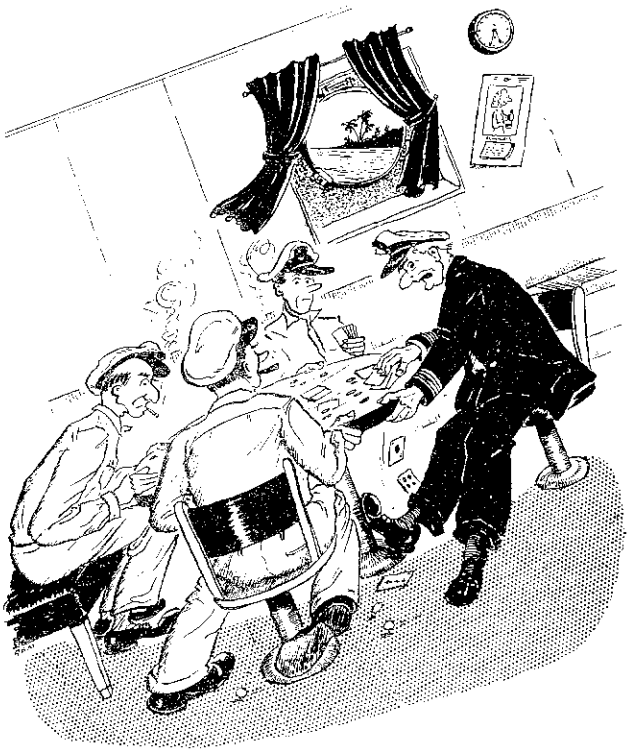
Official changes in rules and regulations are published in the Federal Register, which is printed daily except Sunday, Monday and days following holidays. The Federal Register is a sales publication and may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. 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.

The Ships—As Figured From the Office

SHIP'S MAIL – Incoming



"Alright! Alright! I'll phone New York and tell 'em you gotta be home for Mother's Day"



"One of you Mates better go up and check the course"

"What's this? Only one twelve inch nipple! Better requisition four dozen... NO! Change that...gotta cut down, make it fifty!"

U.S. GOVERNMENT PRINTING OFFICE: 1960