PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

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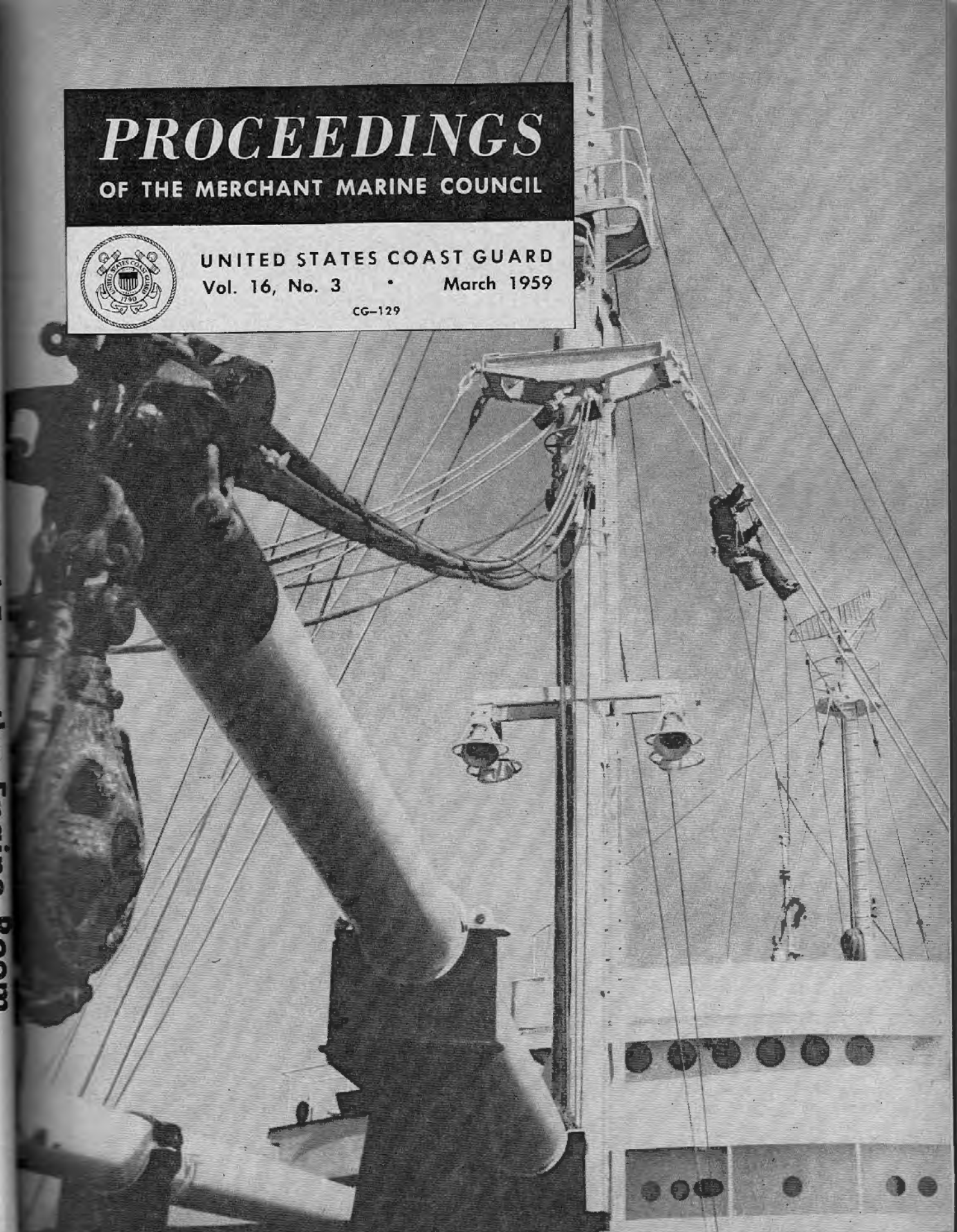

PROCEEDINGS
OF THE
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CONTENTS

FEATURES

FRONT COVER

A continuing job aboard ship is the maintenance of the vessel's rigging. Picture shows seamen on the forward and mainmasts of the SS *Hillyer Brown* slushing standing gear. Photo Courtesy *Standard Oil Co. of California.*

BACK COVER

A List of General Safety Rules posted under glass in every passenger's room aboard American President Lines vessels. See article starting on next page.

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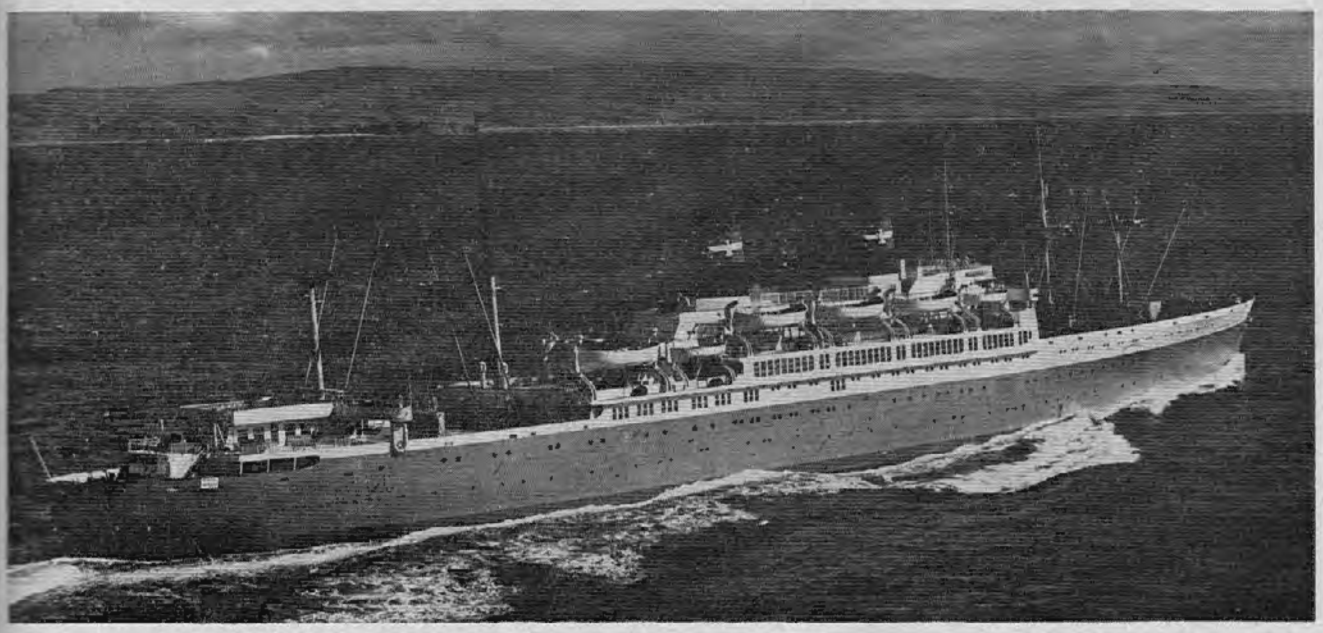
ALCOA HONORS ACCIDENT-FREE SHIPS

CLIMAXING 715 DAYS of accident-free operation, the crew of the SS *Alcoa Roamer* were presented a 16 mm. sound movie projector in recognition of their outstanding record by the safety-minded Alcoa Steamship Co. In ceremonies aboard the ship in Mobile, Alcoa's Senior Port Captain T. L. Proud is seen shaking hands with Cecil T. Terry, ship's bos'n. Others, left to right are C. L. Kinsey, chief mate; A. P. Day, chief engineer; Albert Rogers, fireman-watertender; and John R. Tilley, cook. The award is made to any company ship with 500 days without a lost-time accident and the *Alcoa Patriot* already has qualified for her award which will be made shortly. In making the award, Captain Proud paid tribute to the "encouraging and remarkable" progress that has been made throughout the fleet in "just a little over 2 years since we started hammering home on shipboard safety."

SAFETY ABOARD PASSENGER VESSELS

By CAPTAIN JOHN P. CHILES

(Assistant to Vice President Operations, American President Lines)



THE ESSENTIAL difference between basic requirements for safety in hotels and safety in passenger ships is the matter of *stability*. The accident record of a passenger ship is directly related not only to the degree of movement in a seaway but also the stability of her equipment (and her personnel).

It is not expected that cargo vessels need have the same degree of stability. Because of experience and their duration of employment, persons on board this type of vessel are better prepared to live safely in this environment. They are generally exposed only to accidents resulting from cargo activities, gear maintenance, gear failure and daydreaming.

Man is not amphibious. He normally lives on and moves about the land. Some, called seamen, become familiar with the environment and peculiarities of working at sea. Others, called passengers, are briefly exposed to this element while being transported from one bit of land to another. I daresay that if we could put every passenger to bed before a ship leaves the dock and feed him intravenously or by hypnotic suggestion throughout the voyage, and then rouse him only after the ship was secured at her destination, we would achieve a perfect safety record and all the P and I underwriters would starve to death.

Facing realities, however, we all know that passengers must be actively solicited and somehow persuaded to pay for the privilege of using one of our great ships as a means of transportation. Transocean passenger transportation has only two forms of competition. One, the customer is reluctant to use as it involves levitation or long distance swimming without being able to take along any baggage. The other involves soaring for a protracted period in a facility which cannot provide the relaxations of a Roman plunge or deck tennis.

SAFE TRANSPORTATION

Before we can sell our product, however, moral responsibility, international agreement and good business require that we provide a safe means of marine transportation to all who desire it. This commendable set of circumstances is the direct result of lessons learned from horrible marine disasters. The sinking of the SS *Titanic* on April 14, 1912, with a heavy loss of life in the North Atlantic shocked the world and resulted in calling the First International Conference on Safety of Life at Sea, in London in 1914. This conference adopted minimum standards of subdivision, life boats, required the use of radio, established the use of ice patrols and recommended the use of fixed routes in western oceans.

The 1914 conference was followed by a second in 1929 and a third in 1948. The action to further safety at sea has come from three main sources, viz, the government, shipowners, and underwriters all generally participating in the above conferences and also in the International Load Line Convention of 1930, the Minimum Age at Sea and the Officer's Competency at Sea Certification Conventions of 1936 and the Convention on the Intergovernmental Maritime Consultative Organization of 1948.

The technical aspects of lifesaving and firefighting safeguards and proficiency at sea, especially as required of the vessels supervised by the USCG is well known to all of you and generally (we hope) is an open book to the travelling public. Not so well known, however, are the efforts of the owners, the designers, the operators, the underwriters, and the men who go to sea in these ships to make each voyage as safe from marine and routine accidents as human ingenuity can provide.

With the exception of certain specialized employees or ratings found on any large hotel staff, the crew of a passenger vessel is simply an expansion of the basic crew requirements of a cargo vessel; the incidence of accidents to the crew is affected only by their increased numbers and to a degree by the conflicts of this type of an operation with its environment.

THE PROBLEM OF WOMEN'S modern spiked heels tripping on conventional pierced rubber mats was solved by installation of solid rubber runners.

In the main, therefore, these remarks will be confined to the *handling of passengers.*

Here, in brief, is a summary of comments by our operating, passenger and insurance departments and of masters in the American President Lines passenger ships, including Capt. H. J. Ehman, fleet commodore aboard the SS *President Cleveland;* Capt. J. D. Cox, master of the SS *President Wilson;* Capt. F. E. Angrick, master of the SS *President Hoover,* all trans-Pacific; and Captains E. H. Evans and J. M. Windas, of the Round The World Service and masters of the SS *President Monroe* and SS *President Polk,* respectively.

DESIGN

What has been done and what can be done to build safety into passenger ships? Here again, we are concerned with problems of environment and stability and the necessity to adjust passengers to unfamiliar surroundings as quickly as possible.

Mechanical stabilizers have improved passenger ship *steadiness* at sea. Inasmuch as their hydrofoil principle is effective only in deep water and when a ship has considerable weigh upon her, all concerned must be aware that under certain circumstances any vessel, even if so equipped, can be expected to roll and accidents will result unless heavy weather precautions are observed.

In laying out a foyer, passageway, stairway, public room, dining room, or any sport or amusement area, the normal problems of mass traffic control as complicated by seaborn motion must be considered and weighed against the practical problems of physical dimensions, limitations and economic considerations.

To minimize falls at sea, what type of material will you use to surface the areas designated above? To what degree can you limit and dictate the layout of service accesses together with their ladders, entries, pantries, closets, etc.; will you make every effort to provide lightweight and well-located doors within the framework of classification and USCG regulations and in such manner that they will offer least exposure to accidents? Will all of these fixtures and accessories such as tables, settees, banquettes, buffets, side tables, decorations, pianos, desks, chairs, lamps, and other equipment be either secured permanently to the deck or the bulkheads or else provided with quick securing devices in the event of rough weather?

Are all the stairways and ladders properly pitched? The steps surfaced with flush, nonskid materials and with accepted riser heights? Are they fitted with sturdy hand railings? Properly lighted?

Is the arrangement of fixed and semipermanent furnishings, public rooms, and cabins such that it does not impede normal movement through the room and is secured well enough to lend support to unsteady people? Are the sharp edges and corners eliminated to cause least bodily damage in the event of persons falling against furniture?

Are all areas subject to moveable seating arrangements provided with positive nonskid decks? Will the galley arrangement be most conducive to high traffic flow, facilitating easy movement of personnel carrying trays and equipment? Can food accidentally dropped be quickly cleaned up? Are the highest standards of sanitation provided, including clear decks, easily cleanable equipment, adequate guards for mechanical accessories, mechanical garbage disposals, oversize waste drains, electric-eye automatic service doors, ample ventilation?

DECKS

Wooden decks are probably the safest, but rubberized or vinyl tile decks are satisfactory as long as they do not become wet. When wet, they are as hazardous as an ice skating rink. It is unnecessary to wax them if kept clean and buffed with a dry coir brush. Interior tile decks should receive a number of applications of nonskid wax and frequent dry buffing. There is no tile on the market in our experience that is slip-proof under all conditions.

DOORS

All doors must be fitted with door checks to prevent slamming. The marine industry needs a light weight metal door fitted with resilient material either around the door or on the jam to prevent accidents to fingers. Can stateroom door sills be eliminated? Remember, bruised and purple fingers don't ever look romantic, even clutching a glass of champagne.

LIGHTING

Based on values recommended by the Illumination Engineers Society interior passageways and stairways should be lighted to an average of 5 foot-candles and foyers to 20 foot-candles. Stateroom light switches must be conveniently located to minimize groping in the dark. Locate *bathroom* switches *outside* the door. Overhead clothes closet lights can start fires unless they are properly guarded.

Heavy storage and cleaning lockers should be provided with adequate lighting to insure safe stowage and facilitate proper inspection. Designers should consider the use of light and reflective pastels to assist the lighting of all interior traffic areas.

OUTSIDE DECKS

Deck railings in the way of an accommodation as on the promenade decks should be canted inboard to discourage children from climbing them. Another way of dealing with the same problem is to fit the pipe-rails with closewoven wire mesh or to secure the canvas dodgers inboard of the railing. All mooring chocks or freeing ports in areas where children are allowed *must* be fitted with screens or covers to prevent toddlers from falling through and overboard. Adequate and substantial ash trays and small trash receptacles should be placed about the decks, deck chairs when laid out should be individually secured with lanyards to the grab-rails with their footrests always set up. Temporary safety lines rigged head high between secured permanent fittings along all normal routes of traffic, should be provided in heavy weather.

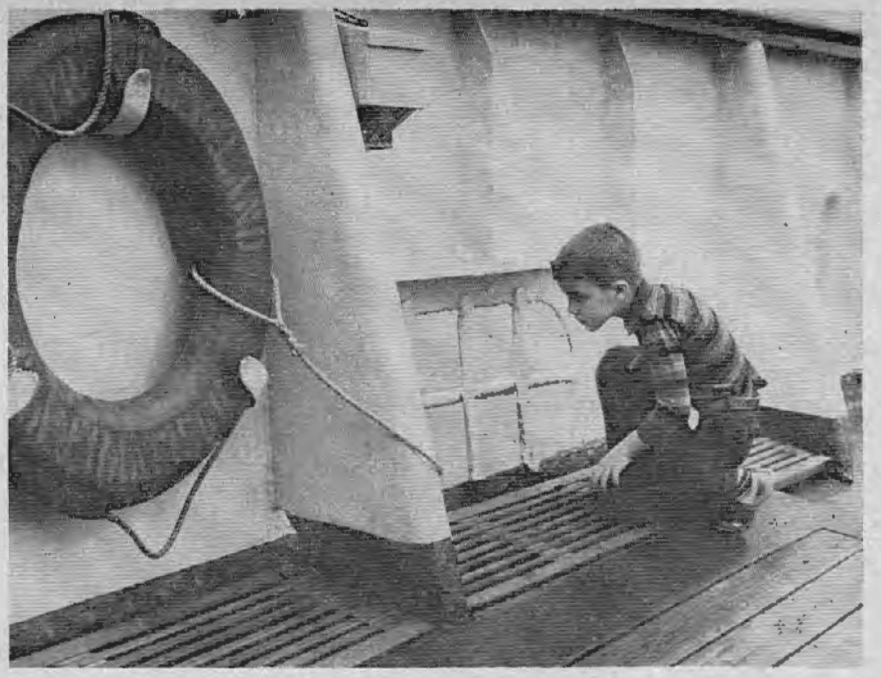
FURNISHINGS

All chairs should be designed with two basic thoughts in mind, strength and stability. Fit all dining room and smoking room tables with what you might call a permanent fiddle in reverse, in other words a ridge projected about ¾ inch below the surface of the table to provide a means of holding on when rolling heavily. Recess overhead equipment in passageways when there is danger of bumping into it.

Provide electric-eye automatic door controls for heavy promenade doors—oscillating fans with removable rubber blades. Hooks instead of friction catches to hold doors open.

BATHROOMS

After you locate each shower and bathtub, please provide convenient, sturdy handrails or grabs so that the average citizen stands an average chance of getting in and out safely. Rubber covered handles on the shower valves may prevent injuries.



INQUISITIVE CHILDREN are prevented from tumbling overboard by installation of guards in way of all bulwark freeing ports.

ACCOMMODATION LADDERS

Design and provide a ladder for your ship's side that a dear old lady can negotiate without losing too much breath, too much dignity, or her hat. Always bear in mind that the feminine tourist carries her purse in the left hand and holds her hat with the right. Handrails are invariably ignored. Should both hands be occupied with purse and hat and her skirts start to fly, then we can only hope that modesty prevails.

After you have contemplated all the safety features which the enlightened designer has or might provide in a passenger vessel and you dream that you are now in a position to operate, completely fitted with safeguards, you suddenly awaken to the sober fact that you are obliged to conduct your business as best you can with the equipment and *personnel* available within a framework of labor contract designed to respect American labor standards.

So you sit down, either singly or in committee and you devise procedures which you calculate, on the basis of experience and advice, will be the safest, considering the equipment and the trade. To salve your conscience and to minimize confusion and legal repercussions, you publish this routine in the form of instructions to all concerned, high and low. Then you sit back and pray that the unexpected or the individualist does not at a critical moment upset your pretty little apple cart.

THE OPERATION

This is the way it works: In Pacific coast ports, density of passengers is measured in terms of acreage instead of inches. Therefore, with proper traffic control and planning, each individual can be bowed into the terminal, disembarked directly at the

(Continued on page 62)

ABOUT THE AUTHOR

Captain Chiles began his seagoing career with American President Lines' predecessor company in 1930 and served afloat as licensed officer and master until his assignment ashore in 1944 as New York port captain for the company. In 1946 he was named marine superintendent, and in 1948 superintendent of operations for all of APL's east coast activity. Considered an expert on ship operations and safety, he presented this paper at the Marine Section, National Safety Council, Chicago, Ill., October 19–24, 1958.

17 LICENSED OFFICERS COMMISSIONED IN COAST GUARD

LT Billingslea

LT Bonawitz

Chief Boatswain Carande

LT Dawley

LT Emory

LT Gates

Chief Machinist Gregory

CONTINUING WITH its policy of attaining a balance whereby 50 percent of all officers assigned to merchant marine safety duties would eventually be those with merchant marine backgrounds, the Coast Guard commissioned 17 former licensed deck and engine officers during the past year.

Eleven were tendered commissions as lieutenant, two as lieutenant (junior grade), and four as warrant officers. All are now completing the first phase of their indoctrination at the Coast Guard Academy.

Following this initial 3-month training, the newly commissioned officers will be assigned as follows:

- Commissioned officers:

  Twelve months' sea duty aboard a major cutter.

  Three months' merchant marine safety indoctrination and then assignment to merchant marine safety duty.
- Commissioned warrant officers:

Three months' merchant marine safety indoctrination after which they may be permanently assigned duties of their specialty within merchant marine safety.

Started in 1949, the so-called Public Law 219, 80th Congress, (14 USC 225(a)(5)) provides for direct commissioning of qualified merchant marine officers in the regular Coast Guard. Including the present group, there are 110 on active duty at this time.

Persons who consider themselves eligible and wish to apply for an appointment as a commissioned officer or commissioned warrant officer should address a letter to the Commandant (PTP), U.S. Coast Guard, Washington 25, D.C., requesting an application form. Complete details on the program, eligible requirements, scope of professional examination, and other pertinent details are included in the publication, CG–231, which is available in any marine inspection office.

To promote interest in this unique officer procurement program, the requirements initiated in 1949 have undergone major revision. Changes have been made relative to age and license requirements to more accurately reflect existing conditions. The important examination time has been increased from a 3-day period to a 3-month period which gives many seagoing applicants a better opportunity to arrange to take the examination between trips without loss of time or pay.

Of interest to applicants is the elimination of chemistry and physics as required subjects. Emphasis has been placed on the practical subjects, i.e., navigation, seamanship, and engineering similar to the professional questions now given for deck and engine licenses by the Coast Guard.

• LT Beverly V. Billingslea—Licensed deck officer, formerly with Marine Chemical Transport Co. Assigned to CGC *Minnetonka*, Long Beach, Calif., after which he will report to the Marine Inspection Office, San Francisco, Calif.

• LT Calvin F. Bonawitz—Licensed engine officer, formerly with Keystone Shipping Co. Assigned to CGC *Campbell*, New York, after which he will report to the Marine Inspection Office, New Orleans, La.

• Chief Boatswain Howard A. Carande—Licensed deck officer, formerly with American Export Lines. Assigned to Marine Inspection Office, New York.

• LT Joseph P. Dawley—Licensed deck officer, formerly with United Fruit Co. Assigned to CGC Casco, Boston, Mass., after which he will report to the Marine Inspection Office, New Orleans, La.

• LT Nelson C. Emory—Licensed engine officer, formerly with Farrell Lines. Assigned to CGC Spencer, New York, after which he will report to the Marine Inspection Office, New York.

LT Larner

Chief Boatswain McCracken

LT Moats

Chief Boatswain Rowe

LTJG Sheaffer

LT Sibley

LT Simonds

LT Wald

LT Wentworth

LTJG Yancey

• LT John E. Gates—Licensed deck officer, formerly with Matson Navigation Co. Assigned to CGC *Gresham*, Alameda, Calif., after which he will report to the Marine Inspection Office, Portland, Oreg.

• Chief Machinist Clinton O. Gregory—Licensed engine officer, formerly with Isthmian Lines. Assigned to the Marine Inspection Office, Baltimore, Md.

• LT David Larner, Jr.—Licensed deck officer, formerly with United States Lines. Assigned to CGC *Absecon*, Norfolk, Va., after which he will report to the Marine Inspection Office, Norfolk, Va.

• Chief Boatswain Francis C. McCracken—Licensed deck officer, formerly with Isthmian Lines. Assigned to the Marine Inspection Office, New York.

• LT Louis F. Moats—Licensed engine officer, formerly with Ohio Barge Line. Assigned to CGC *Ingham*, Norfolk, Va., after which he will report to the Marine Inspection Office, Norfolk, Va.

• Chief Boatswain John E. Rowe—Licensed deck officer, formerly with Isthmian Lines. Assigned to the Marine Inspection Office, New York.

• LTJG Benjamin R. Sheaffer—Licensed deck officer, formerly with Atlantic Refining Co. Assigned to CGC *Rockaway*, New York, after which he will report to the Marine Inspection Office, New York.

• LT Ralph W. Sibley, Jr.—Licensed deck officer, formerly with American Export Lines. Assigned to CGC *McCulloch*, Boston, Mass., after which he will report to the Marine Inspection Office, New York.

• LT Richard K. Simonds—Licensed deck officer, formerly with Military Sea Transportation Service. Assigned to CGC *Coos Bay*, Portland, Maine, after which he will report to the Marine Inspection Office, New Orleans, La.

• LT Leon Y. Wald—Licensed engine officer, formerly with North American Cement Corp. Assigned to CGC *Mackinac*, New York, after which he will report to the Marine Inspection Office, Philadelphia, Pa.

• LT Leigh A. Wentworth—Licensed deck officer, formerly with Army Transportation Corps. Assigned to CGC *Humboldt*, Boston, Mass., after which he will report to the Marine Inspection Office, New York.

• LTJG Kearney L. Yancey—Licensed engine officer, formerly with Lykes Lines. Assigned to CGC *Taney*, Alameda, Calif., after which he will report to the Marine Inspection Office, San Francisco.

The main qualifications for the various ranks are as follows:

● LIEUTENANT (Junior Grade)

Age—Must not reach 32d birthday in the calendar year in which application is made.

License—Second Mate (unlimited)—Oceans or Coastwise; First Class Pilot (unlimited)—Great Lakes, Western Rivers, or other inland waters; or Second Assistant Engineer (5,000 or more horsepower); First Assistant Engineer (2,000 or more horsepower).

Experience—Four or more years' service aboard a vessel of the U.S. in the capacity of a licensed officer. Of this service, at least 3 years must have been served aboard commercial merchant vessels of the U.S. Credit for up to 1 year may be given for service aboard public vessels of the U.S. Service aboard public vessels, however, must meet the Coast Guard equivalency standards used to determine eligibility for a merchant marine license or a raise in grade.

● LIEUTENANT

Age—Must not reach 38th birthday in the calendar year in which application is made.

License—Chief Mate (unlimited)—Oceans or Coastwise; Master and First Class Pilot (unlimited)—Great Lakes, Western Rivers, or other inland waters; or First Assistant Engineer (5,000 or more horsepower); Chief Engineer (2,000 or more horsepower).

Experience—Six or more years' service aboard a vessel of the U.S., in the capacity of licensed officer, of which not less than 1 year must have been served as Chief Mate or First Assistant Engineer.

Two years of the 6 required may have been served aboard public vessels. Service aboard public vessels, however, must meet the Coast Guard equivalency standards used to determine eligibility for a merchant marine license, or for a raise in grade.

An applicant who holds a degree from an accredited college, or who is a graduate of a Federal or State maritime academy, may substitute his degree, diploma, or certificate of completion for 1 year of the required 6.

Experience ashore as assistant port captain, assistant port engineer, marine surveyor, or comparable position may be substituted equally for up to 2 years of the required 6.

A combination of substitutions of educational credit and experience ashore cannot serve to reduce actual sea service below the 4 years required by law. Credit for service aboard public vessels cannot reduce the required sea service aboard commercial merchant vessels below 3 years. Substitution cannot be made for the required 1 year's service as Chief Mate or First Assistant Engineer.

● LIEUTENANT COMMANDER

Age—Must not reach 40th birthday in the calendar year in which application is made.

License—Master (unlimited)—Oceans or Coastwise; Master and First Class Pilot (unlimited)—Great Lakes, Western Rivers, or other inland waters; or Chief Engineer (unlimited horsepower).

Experience—Twelve or more years' service aboard a vessel of the U.S., in the capacity of a licensed officer, of which at least 1 year must have been served as Master or Chief Engineer.

Four years of the 12 required may have been served aboard public vessels. Service aboard public vessels, however, must meet Coast Guard equivalency standards used to determine eligibility for a merchant marine license or for a raise in grade.

An applicant who holds a degree from an accredited college, or who is a graduate of a Federal or State maritime academy, may substitute his degree, diploma or certificate of completion for 1 year of the required 12.

Experience ashore as assistant port captain, assistant port engineer, marine surveyor, or comparable position may be substituted equally for up to 5 years of the required 12.

A combination of substitutions of educational credit, experience ashore, and service aboard public vessels cannot reduce the required actual sea service aboard commercial merchant vessels below 6 years. Substitution cannot be made for the required 1 year's service as Master or Chief Engineer.

● COMMISSIONED WARRANT OFFICER—W-3

Age—Must have reached 27th birthday and must not reach his 40th birthday in the calendar year in which application is made.

License—Third mate (unlimited)—Oceans or Coastwise; First Class Pilot (1,000 or more gross tons)—Great Lakes, Western Rivers, or other inland waters; Third Assistant Engineer (2,500 or more horsepower); First Assistant Engineer (1,000 or more horsepower).

Experience—Six or more years' service aboard a vessel of the U.S. in the capacity of a licensed officer.

An applicant who holds a license higher in grade than the basic requirement may substitute the higher license, of whatever higher grade, for a maximum of 2 years of the 6 required.

Two years of the 6 required may have been served aboard public vessels. Service aboard public vessels, however, must meet Coast Guard equivalency standards used to determine eligibility for a merchant marine license or for a raise in grade.

A combination of substitutions of higher license credit and service aboard public vessels cannot reduce the required actual sea service aboard commercial merchant vessels below 3 years.

● COMMISSIONED WARRANT OFFICERS—W-4

Age—Must have reached 27th birthday and must not reach his 40th birthday in the calendar year in which application is made.

License—Third mate (unlimited)—Oceans or Coastwise; First Class Pilot (1,000 or more gross tons)—Great Lakes, Western Rivers, or other inland waters; Third Assistant Engineer (2,500 or more horsepower); First Assistant Engineer (1,000 or more horsepower).

Experience—Twelve or more years' service aboard a vessel of the U.S. in the capacity of a licensed officer.

An applicant who holds a license higher in grade than the basic requirement may substitute the higher license for 2 years of the required sea service. Only two grades higher than the basic license requirement will be credited, and the maximum possible substitution of higher license for sea time is 4 years.

Four years of the 12 required may have been served aboard public vessels. Service aboard public vessels, however, must meet Coast Guard equivalency standards used to determine eligibility for a merchant marine license or for a raise in grade.

A combination of substitutions of higher license credit and service aboard public vessels cannot reduce the required actual sea service aboard commercial merchant vessels below 6 years.

MARINE MACHINERY BREAKDOWNS

By J. H. MILTON
Senior Surveyor in charge of Engineering Investigation, Lloyd's Register of Shipping

Reprinted from the Transactions, North East Coast Institution of Engineers and Shipbuilders, Volume 73, 1957, this Paper will cover, in this and subsequent issues, some of the problems which can confront Surveyors and Superintendents when serious defects, necessitating the delay of a vessel, have developed at sea or have been brought to light at a survey. The cases will cover the following groups: (a) Steam Reciprocating Engines, (b) Boilers, (c) Turbines and Gearing, (d) Diesel Engines, (e) Thrust and Inter Shafting, (f) Tailshafts.

DIESEL ENGINES

PERHAPS the most baffling trouble experienced in the marine oil engine field is the overheating and squeezing out of the metal of opposed piston engine center top end bearings. There is little or no doubt that this occurs through the complete center bottom end assembly moving fore and aft with every revolution of the crankshaft, thus overloading each top end bearing alternately—one on the compression stroke and the other on the firing stroke.

The cure is to stop this fore and aft motion of the bottom end of the connecting rod with its bearing. To effect this cure the cause of the movement must be first ascertained, and this can be:

(a) Bottom end spherical bearing binding in its housing when under load, due either to badly mating spherical surfaces or to the fact that the white metal of the inner bearing surface on the crankpin is in poor condition—this raising the operating temperature slightly and causing the spherical bearing to open out across the horns. (1° C. rise in temperature of the white metal surface will open out a spherical bearing $2\frac{3}{1000}$ inches across the horns, and this is its total clearance in the connecting rod.) The effect of this binding is that axial malalignment of the center crankpin journal, due to torque, initiates a fore and after movement of the complete bottom end bearing on the crankpin at round about half stroke positions.

(b) Malalignment of the crankshaft causing a fore and after movement of the complete center crankpin with each revolution—this tending to take the bottom end bearing with it. In cases of doubtful alignment of these crankshafts it is advisable to have same checked either by taut wire apparatus or alignment telescope, and not to place too much reliance on wear-down gauges or deflection readings.

The author's experience of this trouble is that in all troublesome cases of this nature, success has eventually been achieved when:

(a) The crankpin surface has been made of good finish, cylindrical and in alignment with the crankshaft journals.

(b) The white metal surface of the bottom end bearing is properly bedded, with the crankpin on T.D.C.

(c) The connecting rod spherical housing and spherical bearing outer surface have been machined to correct spherical shape, of good finish, and finally properly bedded, leaving the bearing well clear on the horns.

(d) The alignment of the crankshaft has been checked by taut wire gear and corrected where necessary.

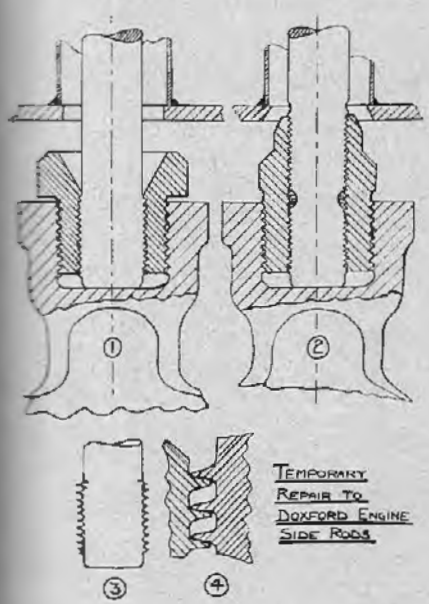


Figure 1.

SIDE ROD CROSSHEAD DEFECT

Although favored by many owners on account of its economical operation, the oil engine, especially in its earlier forms, often presents unexpected problems, requiring speedy investigation and repair to enable the vessel to proceed to sea.

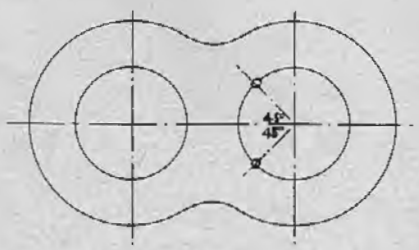


Figure 2.

One such case occurred on an opposed piston-engined cargo vessel, where it was found that the differential nuts, securing the side rods to the crossheads, were all slack and had been operating in this condition. The general arrangement of these attachments is as in figure 1 [1] and running them in a slack condition had resulted in the threads on the side rods and in the inside of the nuts becoming dangerously thin (*see* figure 1 [3] and 1 [4]). Two of the rods had in fact developed slight fractures at the base of their top threads.

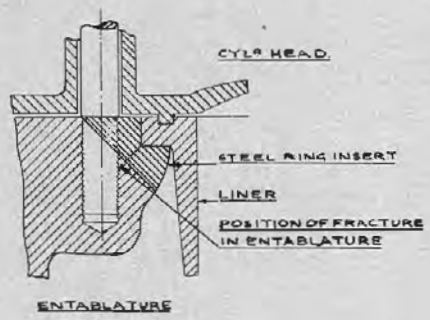


Figure 3.

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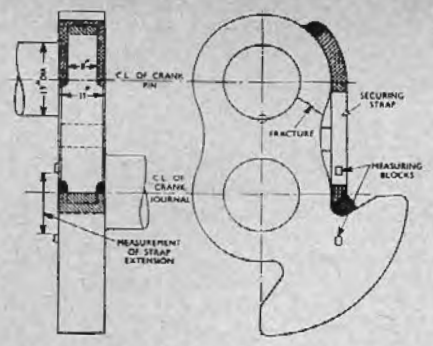


Figure 4.

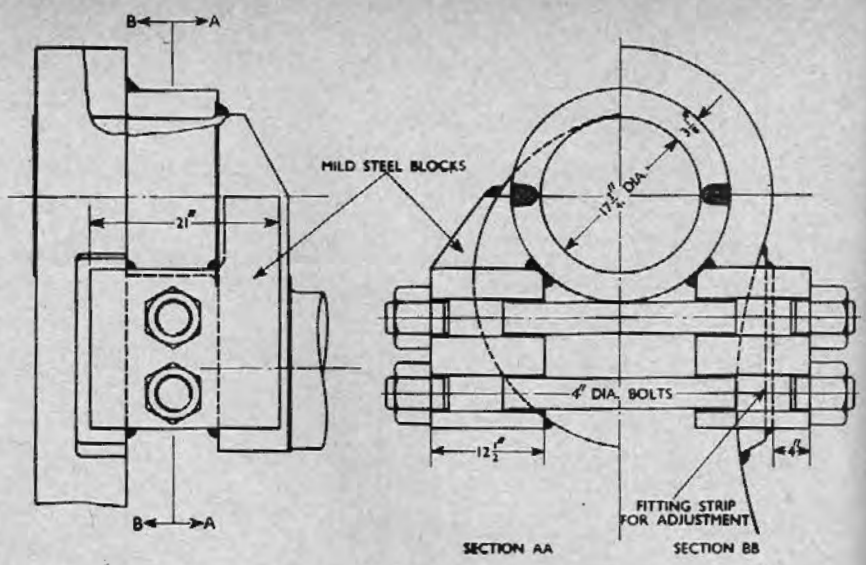


Figure 5.

Every effort was made to obtain new side rods, but these were not forthcoming, and after some calculations had been made it was decided, as a temporary repair, to remachine the bottom ends of the rods using a negative instead of a plus thread, with new nuts of extended length (*see* figure 1 [2]).

Any fractures at the base of the threads were machined out in the form of a shallow smooth groove—it was subsequently found that the extended nuts when fitted were dangerously near the entablature top, and they had to be chamfered to clear same.

This temporary repair enabled the vessel to continue trading while new forgings were made and machined.

MOVEMENT OF CRANKSHAFT SHRINK FITS

One of the most controversial problems which can arise on oil engine survey and repair work, is what action to take with a crankshaft shrink fit which has slipped slightly, say ¾ inch or so at the witness marks. The opinion is often put forward that once a shrink has slipped it will never slip again under normal conditions, and all that is necessary is slightly to alter the engine timing to suit the new crank angle. Whereas this line of action may be quite acceptable in a twin screw vessel, it is in my opinion a dubious one for a single engine installation, especially so when it is one of the after shrinks which is affected. The trouble in such cases is that even if the cause of the slip is known, be it water in a cylinder, or shock of another nature, the condition of the mating surfaces of the shrink and the hoop stress cannot be ascertained. In view of these facts and the possibility that the hoop stress has been lessened by the slip, it has always seemed safe policy to me in the case of a single screw vessel to resort to dowels, two small diameter dowels at 90° to one another in preference to one large one which tends to lessen the shrink (*see* figure 2). I know of instances on single screw vessels where those responsible for the safe operation of the machinery have, after due consideration of all facts, decided to leave a slipped shrink alone until it is convenient to remove the shaft for repairs, and they have been successful—whether this is good luck or good judgment is, I think, controversial.

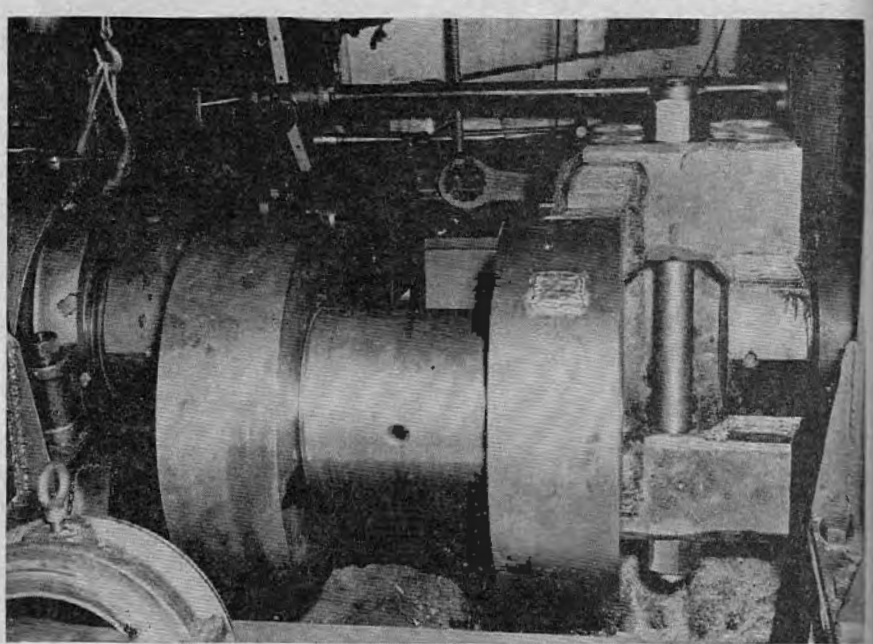


Figure 6.

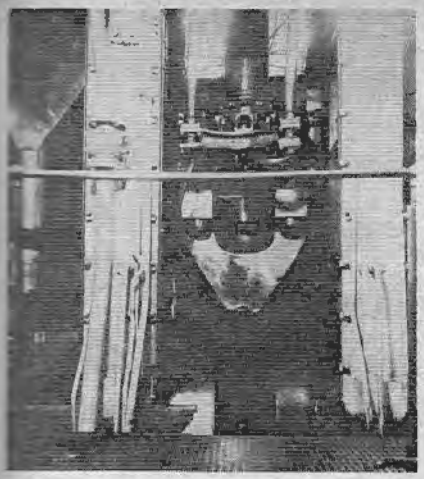


Figure 7.

CRACKED CYLINDER ENTABLATURE

Cracked cylinder entablatures, especially in the case of some of the small main propulsion engines largely used in coasters, can sometimes look unrepairable. Excessive tightening down of cylinder heads to stop water leaks has no doubt been responsible for initiating and propagating many fractures in cylinder entablature liner landings (*see* figure 3).

In one such coaster the landing of a cylinder liner, in the single piece cast iron entablature of the 6-cylinder engine, was badly cracked circumferentially in the aforementioned manner. It looked as if a complete new entablature would be required and this was a matter of great concern to the captain who was part owner. After consultation with the various parties concerned it was decided to try and effect a temporary repair. A boring bar was fitted up vertically in the entablature, and the cracked landing and entablature top bored out at 45° back to the circle of studs. A steel insert ring, fabricated from welded bar, was then turned up in the lathe and, after grinding into the entablature, was put in place with a smear of red lead paint and the liner replaced. The cylinder head held the whole assembly solid and the repair was completely successful.

CRANKSHAFT FAILURES

Fractures of main engine crankshafts, either partial or complete, which have occurred while vessels have been far distant from their home ports, have been the subject of many very interesting temporary repairs. An example of a repair of this type effected to a fractured crankweb of a Burmeister and Wain engine, in Australia in 1946, is shown in figure 4. In this case a strap of heavy section (11 inches by 4 inches) was laid in place along the fractured crankweb, secured at one end, and heated by a system of electric elements until its extension, measured at the points shown in the illustration, equalled the width of the crack when final welding commenced. The additional heat generated during welding produced a further slight extension, and when the assembly cooled down after completion of the welding, the crack was effectively closed.

A second example of a welded repair to a fractured crankshaft is one effected at New Zealand to a Doxford engine. In this case the 17¼-inch diameter crankshaft was found, on arrival in a New Zealand port, to be cracked in way of the forward side pin and forward side web of the after three-throw crank, and a repair was effected as shown in figures 5 and 6. A ring was first mounted over the forward side crank pin and mild steel shaped blocks were fitted between the center and forward side webs, the center assembly then being heavily block welded and finally secured by means of two stud bolts of 4-inch diameter. On completion of this repair, the vessel made a successful voyage home to the U.K. in the latter part of 1952.

FAILURE OF MAIN ENGINE CONNECTING ROD

The aforementioned repairs to crankshafts and in fact the majority of temporary repairs effected to enable vessels to complete voyages, usually make extensive use of electric welding. Welding offers a convenient method of repair for broken components and is often used, rightly or wrongly, for the building up of wasted parts of engines and boilers.

The misuse of welding has been responsible for numerous failures, and one of the most serious came to light during the investigation into the cause of a disastrous breakdown of a new main propelling oil engine at sea, which caused the ship on her maiden voyage to be adrift for some days before being taken in tow. In this case one of the connecting rods of the 2SCDA engine broke beneath the fork, while the engine was running at full ahead, and wrecked the entire engine (see figures 7 and 8). In fact, if the broken off connecting rod swinging round on the crankshaft had been slightly longer it would have cleared a path for itself through the bottom of the vessel. Investigation disclosed that the defective connecting rod had been built up by electric welding, to make good a deficiency in material, which had prevented it cleaning up properly during initial machining. The fracture originated at the weld, and this case is indicative of what can occur when indiscriminate welding is done on important engine forgings subjected to alternating stresses under service conditions.

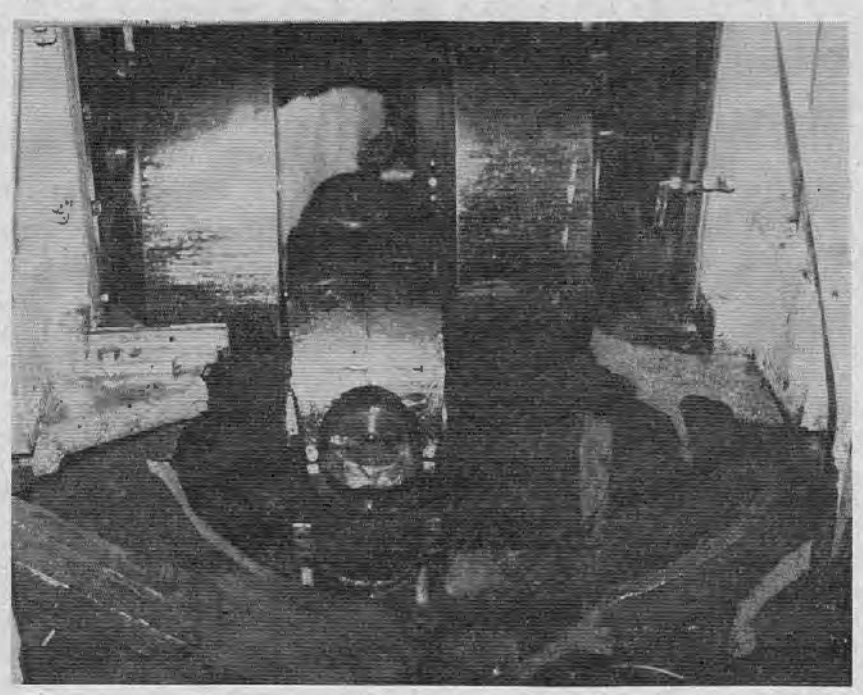


Figure 8.

THE 1959 INTERNATIONAL ICE PATROL

THE UNITED STATES Coast Guard will resume operations and services of the International Ice Patrol for the 1959 ice season at such time as ice conditions make it advisable, normally about March 1.

The primary objective is to ascertain the location and drift of icebergs and field ice which endanger, or soon may endanger shipping in the vicinity of the Grand Banks of Newfoundland, to determine the southwestern, southeastern, and southern limits of that ice and to disseminate this information for the guidance and warning of shipping.

WATCHFUL VIGIL: A Coast Guard aircraft swings over an icy monster sighted on Inter national Ice Patrol several years ago. Ships and planes observe, chart, study, and issu warnings when any ice hazard is found that may endanger navigation.

FUNCTIONS OF PATROL

To accomplish this objective, International Ice Patrol employs aircraft based at Argentia, Newfoundland, for aerial ice observations, a vessel for surface patrol when necessary and an oceanographic vessel for the mapping of ocean currents. The Ice Patrol collects ice, weather, and sea temperature reports from shipping and aircraft traversing the Ice Patrol area, evaluates all ice information in the light of meteorological and oceanographic conditions, and by means of U.S. Coast Guard Radio Argentia (NIK) communicates to shipping the ice situation in the Grand Banks area.

IMPORTANCE OF ICE, VISIBILITY, SEA TEMPERATURE AND WEATHER REPORTS FROM SHIPPING

Each ice bulletin by NIK will contain a request for all ships to report any ice sighted, and when in the area between latitudes 39° N. and 49° N. longitudes 42° W. and 60° W. to report every 4 hours ship's position, course, speed, visibility, sea temperature, and weather conditions. These reports by shipping are of the utmost importance to the International Ice Patrol.

During periods of low visibility or low ceilings when aerial ice observation is rendered ineffective, ice reports by shipping are invaluable in aiding the Ice Patrol to relocate drifting ice and to keep the position of that ice, as reported in ice bulletins, up-to-date. The visibility reports are of considerable value in planning ice observation flights to avoid areas where poor visibility precludes effective air scouting and to concentrate on other areas.

VISIBILITY REPORTS

Visibility reports also are useful in deciding whether or not special warnings on ice conditions should be broadcast. Sea temperatures reported to the Ice Patrol are used to construct isotherm charts employed in estimating ice melting rates and detecting shifts in the branches of the Labrador Current. Wind data is useful in estimating set and drift of ice, especially field ice, and in forecasting weather for the purpose of planning ice observation flights.

In reporting ice to NIK, it is important that certain information be furnished in order that the report be evaluated correctly, especially from the standpoint of ruling out occasional erroneous reports and obviating unnecessary searches and warning to shipping. The information desired is (*a*) the type of ice sighted, i.e. berg, growler or field ice (NOTE: If a radar target is reported which is believed to be ice but is not actually sighted visually, it should be reported as a radar target, NOT as berg growler or field ice), (*b*) the position of the ice (not the position of the reporting ship), (*c*) the sea temperature at point of closest approach to the ice, (*d*) weather and visibility conditions.

In view of the heavy reliance placed by Commander, International Ice Patrol on the reports of ice, visibility sea temperatures and weather from shipping, all ship masters are strongly urged to make these reports. It is realized that ships with but one radio operator may find it impracticable to report every four hours as requested. It is suggested that these ships prepare four hourly reports but delay transmitting them until the radio operator comes on watch. Such delay is undesirable, but a delayed report is much better than no report.

EDITOR'S NOTE:

Additional information on the history and formation of the Patrol with brief discussions on ice, icebergs, and ocean currents is contained in the pamphlet International Ice Patrol (CG–171) available without charge from the Commandant (CHS) U.S. Coast Guard, Washington 25, D.C.

ICE BULLETINS

Ice bulletins will be broadcast twice daily, at 0048 and 1248 GMT, by U.S. Coast Guard Radio Argentia (NIK) on 155, 5320, and 8502 kcs. Each broadcast will be preceded by the general call CQ on 500 kcs. with instructions to shift to receive on 155, 5320, or 8502 kcs. After shifting to these frequencies, NIK will transmit test signals and the International Ice Patrol radio call sign NIK for about 1 minute to facilitate tuning. Transmission of the bulletin will then follow immediately at 15 words per minute and repeated at 25 words per minute. Prescribed radio silent periods will be observed.

When deemed advisable, special ice bulletins may be broadcast in addition to those regularly scheduled. Such special ice bulletins will be preceded by the international safety signal TTT.

Duplex operation will be used between NIK and merchant ships for general radio communications, such as requests for special information, reports made by merchant ships of ice sighted, sea temperatures, visibility and weather conditions. Merchant ships may call NIK on 500 kcs. or their assigned calling frequency in the band 8354–8374 kcs. and work on 425, 448, 454, 468, or 480 kcs. or their assigned 8 mc. working frequency, NIK will work on 432 kcs. or 8650 kcs. The surface patrol vessel, radio call sign NIDK, when on station will relay between NIK and ships when necessary. There is no charge for these services.

Throughout the ice season, U.S. Navy Radio Washington (NSS) will broadcast ice reports twice daily as furnished by Commander, International Ice Patrol, at 0430 and 1630 GMT. U.S. Coast Guard radio stations at Boston and New York (NMY) will broadcast bulletins provided by the Hydrographic Office.

WARNING

Ships equipped with radar are cautioned that under certain conditions small bergs and growlers of a size sufficient to damage a vessel may not be detected due to being obscured by the sea swell or scope clutter.

REPORTING PROGRAM

In accordance with the provisions of the Merchant Vessel Reporting Program, U.S. Coast Guard Radio Argentia (NJN) and Commander International Ice Patrol (NIK) will accept Merchant Vessel Position Reports for relay to Coast Guard, New York. These reports should be separate from the ice and temperature reports addressed to Commander, International Ice Patrol.

UNUSUAL ACCIDENT

One piece of shipboard equipment that seems to roll along with a minimum of trouble is the anchor windlass. It is massively built, designed to withstand rugged treatment, and reports of materiel failure are rare.

However, like any machinery it is subject to wear and tear and should be periodically lubricated and checked. Its position on the bow makes it particularly vulnerable to corrosive action by storm and sea.

A case in point was recently reported to Coast Guard Headquarters. A tanker was being moored in a large Gulf port under good conditions. Two 8-inch manila head lines had been made fast on the dock and the crew on the fo'c'sle head were heaving them in simultaneously using the starboard and port drums on the anchor windlass.

Suddenly, without warning, a portion of the plating on the starboard drum caved in under the pressure and the jagged edges severed the line. Released from terrific tension, the mooring line whipped across the deck sweeping two seamen against the outboard bulwark. One man was only shaken up, but the second suffered a compound fracture of the leg, head injuries, and contusions of the body.

Subsequent inspection of the drum disclosed that internal corrosion had reduced the original thickness and the broken metal measured approximately ⅛ of an inch.

There is no question that this is an unusual accident, but a possibility exists that the above conditions may exist on other vessels of comparable age and service. How are your capstans, gypsy heads, and drums?

DANGEROUS CARGO REGULATIONS

(Pocket Supplement)

The cumulative pocket supplement to 46 CFR Part 146 to Part 149 (Dangerous Cargo Regulations) may be obtained as a sales publication from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. Price $1.50. This cumulative supplement contains all amendments to these regulations. This supplement brings these Dangerous Cargo Regulations up to date as of January 1, 1959.

NEW BOOKLET

Newest revised edition of the Coast Guard's Specimen Examinations for Merchant Marine Deck Officers (CG–101) is now available. The booklet is designed to acquaint prospective candidates with the type of questions they will be required to answer in order to qualify for licenses, and supersedes the 1950 edition. The 121-page publication covers specimen examinations for third mate, second mate, chief mate, and master including sample questions on the International and Inland Rules of the Road and radar observer.

In addition to the professional qualifications, the booklet cites minimum age and experience requirements, citizenship, type of application form, physical standards, and reexamination and renewal procedures.

Copies may be obtained without cost from any Coast Guard Merchant Marine Inspection Office.

CORRECTION

The 24" x 24" large scale maneuvering board referred to in the article "Maneuvering Board—Large or Small" in the January issue of the *Proceedings* is H.O. 2665 instead of H.O. 2556 as printed.

MARITIME SIDELIGHTS

The Marine Section, National Safety Council, will hold its spring sessions April 15 and 16 at the Statler Hotel in New York in conjunction with the Greater New York Safety Council's Annual Convention and Exposition. The customary sessions devoted to shipbuilding, ship operations, and stevedoring will be held.

⚓ ⚓ ⚓

Renewing a service of the early 30's, Moore-McCormack will sail the new SS *Brasil* on a 33-day trip to Norway, Sweden, Finland, Denmark, Germany, Scotland, England, and Ireland departing from New York May 14th. Not since the days of the *Scanpenn, Scanmail, Scanstates,* and *Scanyork* has the company sent a passenger ship to this area.

⚓ ⚓ ⚓

Employers of seamen employed as relief or standby members of the crew of a vessel coming within the purview of 33 CFR 121.01 and 46 USC 672(i) are directed to Navigation and Vessel Inspection Circular No. 7–58 printed in the appendix of this issue. This circular calls attention to the requirement that persons temporarily employed in port must be in possession of appropriate documents validated for emergency service and endorsed for the rating in which he is to serve, or if employed in a licensed capacity, he should possess appropriate license.

⚓ ⚓ ⚓

An accident analysis compiled by the Seafarers' International Union aboard their 240 contract ships for the third quarter of 1958 shows that most accidents occur:

- To members of the deck department between 26 and 45 years of age.
- By slips, falls, lifting, and striking against.
- On deck.
- To fingers, back, and legs.

⚓ ⚓ ⚓

Did you know that there is no antifouling ship bottom paint available which is equally effective in both fresh water and sea water? This fact is included in the January issue of the Prevention of Deterioration Center *Newsletter*.

LARGEST AND MOST POWERFUL inland towboat is the MV *United States* seen above. With 8,500 horsepower, she is capable of pushing 40 barges carrying a total of 40,000 tons of cargo—equivalent to the capacity of 10 freight trains of 100 cars each. The towboat is 180-feet in length, has a 58-foot beam, and displaces 1,760 tons at an operating draft of 8 feet 6 inches. Photo Courtesy *Federal Barge Lines, Inc.*

A total of 9,446 ships of 45,977,522 net tons arrived and departed San Francisco's Golden Gate during 1958, it was announced by the Marine Exchange, Inc. This 150-vessel increase over 1957 included arrivals of 3,004 American ships and 1,748 foreign ships from 24 countries. Under foreign flag, Japanese ships accounted for 426 arrivals and 342 were under the Norwegian flag.

⚓ ⚓ ⚓

Publication of a study on the "Earnings and Employment of Seamen on United States Flagships, July 1, 1956–June 30, 1957" has been announced by the Maritime Administration. The 90-page booklet is being distributed at 60 cents per copy, and may be obtained from the Superintendent of Documents, Washington, D.C., and the Bureau of Labor Statistics offices in New York, Boston, Atlanta, and San Francisco.

The study shows that seamen (excluding masters and cadets) had an average daily earning of $20.19. Licensed officers as a group averaged $29.80. Average daily earnings ranged from $12.77 for wipers to $39.14 for chief engineers and $35.94 for chief mates, the report said.

⚓ ⚓ ⚓

As of January 1, 1959, the Maritime Administration, U.S. Department of Commerce, had in effect, under title XI of the Merchant Marine Act, 1936, as amended, approximately $244.8 million net in Government mortgage insurance and commitments to insure mortgages involving 32 ships, it was announced by Acting Maritime Administrator Walter C. Ford.

ACCIDENTS IN BRIEF

Here is a condensation of some accidents reported to Coast Guard Headquarters during the past month. A capsule glimpse into the cause * * * and effect. In each case the victim was incapacitated at least 72 hours.

CAUSE	EFFECT

Old tin can	Deep cut on hand trying to make ash tray
Trimming gasket	Knife slipped, gashed wrist
Fall into crankpit	Six days incapacitation
Slip on icy deck	Injured left knee
Jury rigged ladder	Bruised hand in fall to deck
Caught between ship and dock	Compound fracture right leg

Cleaning fish	Infected thumb
Cleaning burner tip	Piece flew into eye
Dropped 4-inch hose	Flange mashed big toe
Entangled in mooring line	Severed left leg below knee

Descending gantline	Fell, fractured right ankle
Boiler flareback	First-degree burns to hand
Jumping from gangway to dock	Sprained right ankle

APPEAL DECISIONS

For assaulting a fellow crew member with a dangerous weapon, to wit: a fire ax, this seaman was found guilty of misconduct by a Coast Guard examiner who revoked his seamans documents. The Commandant acknowledged the man's prior clear record and the personal hardship involved, but agreed the revocation order was a suitable one in this case.

★ ★ ★

Failure to perform his duties, absent from duty without permission, and failure to join were determined as misconduct by a Coast Guard examiner who suspended this pantryman's seamans documents for a period of 8 months. "Considering this man's failure to perform his duties on 3 other days during this voyage and his prior record of similar offenses, the total order of 8 months' outright suspension is not too severe and it will be sustained," the Commandant said on appeal.

★ ★ ★

For wrongfully having certain narcotics, to wit: marijuana, in his possession, this able seaman was found guilty of misconduct by an examiner who revoked his seamans documents. The Commandant affirmed the order on appeal.

★ ★ ★

A combination of specifications for failure to turn to, creating a disturbance due to intoxication, and wrongfully under the influence of intoxicants resulted in this chief cook being found guilty of misconduct by a Coast Guard examiner. His seamans documents were revoked. The Commandant affirmed the order on appeal.

★ ★ ★

Found guilty of negligence, this pilot had his license and all other seamans documents suspended for a period of 1 month on 6 months' probation by a Coast Guard examiner. The suspension, which was affirmed on appeal, was ordered on finding the pilot failed to keep clear of the edge of the channel in which he was navigating thereby causing the vessel he was piloting to ground.

★ ★ ★

For failure to join his vessel on departure from a foreign port, this seaman was found guilty of misconduct by a Coast Guard examiner who suspended his seamans documents for a period of 6 months, executing a prior 6 months' suspension on probation. The Commandant affirmed the order on appeal.

POWERFUL SIGNAL

Ships navigating the Eastern Mediterranean near the Greek island of Rhodes have been cautioned to keep a sharp eye on the Coast Guard cutter *Courier* (WAGR–410) stationed there.

The *Courier* is a powerful sea-going radio broadcasting station and when she is "on the air" radio frequency radiation danger may exist in vessels with their radio receivers connected to a receiving antenna.

To prevent this radiation hazard or the signal being set up in stays, the *Courier* will display the following signals when working her radio equipment:

By Day: The International Flag Signal C–L–W, meaning "I am Broadcasting" and three black cylinders 3 feet in diameter in a vertical line 6 feet apart.

By Night: Three lights—red, green, red, in a vertical line 6 feet apart.

When either of these signals are observed, passing mariners are warned of the possible danger and urged to disconnect their transmitters.

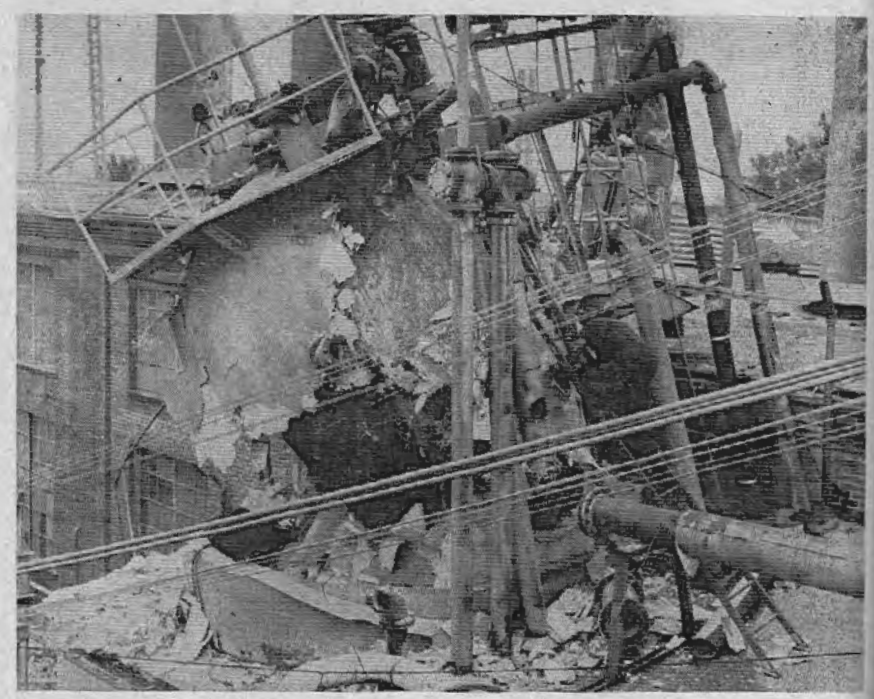
FEEDWATER HEATER COLLAPSES

One of the most frequent causes of collapse of vessels is partial vacuum caused by condensation. Time after time, accident reports state that cold water was allowed to enter a vessel that apparently contained steam.

The speed with which condensation can occur under such conditions is astonishing and not appreciated by most persons. The temperature of steam in a vessel may be only a few degrees higher than the boiling point of water. Therefore, just a small amount of introduced cold water can almost immediately absorb sufficient heat to cause the temperature of a comparatively huge volume of steam to drop several degrees.

Just as water hotter than 212° F. in a sealed container flashes into steam when suddenly exposed to atmospheric pressure, so steam becomes condensate or water just as suddenly when its temperature is dropped below the boiling point of water. Therefore, the shock on the walls of the vessel can be as severe as if an explosion had occurred near the outside surface of the vessel. The effect of a sudden *decrease* in pressure on the *inside* surfaces of a vessel is the same as a sudden *increase* in pressure on the *outside* surfaces.

A vacuum occurred in a feedwater heater so suddenly a 16-inch vacuum breaker was unable to relieve the vacuum quickly enough to prevent



damage. The feedwater heater, fabricated of a quarter of an inch steel, collapsed when an operator attempted to fill it with water after the vessel had been cleaned. Apparently the vessel was not known to contain steam. The steam condensed, causing a partial vacuum, allowing the vessel to collapse to the extent that the sides buckled and touched each other, the metal cracked, and the seams tore. Reprinted from *The Locomotive* of the *Hartford Steam Boiler Inspection and Insurance Company.*

nautical queries

Q. How do the centrifugal pumps, driven by and used for cooling the main engine, usually differ when installed on direct-reversing engines from those installed on unidirectional diesel engines?

A. The centrifugal water pumps used on direct-reversing engines usually have impellers with straight radial vanes and the housing is constructed concentric about the impeller, whereas those used on unidirectional engines are usually the conventional centrifugal pumps with curved impeller vanes and the volute type housing. The efficiency of a pump so constructed is lowered by the radial vanes, and in order to obtain the necessary pressure and capacity, such pumps must be operated at higher speeds than the conventional pumps.

Q. In which engine would the inertia forces be greater, the 2-cycle or the 4-cycle, both with like cylinder diameters and piston speeds? Give the reason for your answer.

A. The inertia forces would be greater in the 2-cycle engine because the longer, trunk-type piston increases the moving mass. The 2-cycle piston is not only heavier but probably will also contain more cooling water or oil than the 4-cycle.

Q. Should the addition of a supercharger cause additional frictional losses or wear in a 4-cycle diesel engine? Explain.

A. A diesel engine loses about the same power in frictional horsepower at no load as it does at full load, so that an increase in power by supercharging should not cause any additional friction losses. The maximum cylinder pressures and temperatures should not be any higher than prior to supercharging, hence there should not be any appreciable increase wear.

Q. What is ignition lag? How is ignition lag affected by the cetane number and the viscosity of the fuel?

A. Ignition lag is the time interval between the beginning of injection and the beginning of combustion. It may be expressed in angular degrees or seconds of time. Fuels with a low cetane number or high viscosity will have a greater ignition lag than those with a higher cetane rating and lower viscosity. Present high-speed diesels require a cetane number of about 50 and the preferred viscosity is from 35–45 s. s. u. at 100° F.

Q. What precautions should be taken when using manila mooring lines on a windlass gypsyhead or a capstan in order to prevent kinking of the line?

A. Turns should alternately be taken right handed or left handed, i. e., clockwise or counterclockwise. This may be accomplished if necessary by alternately using the line on the port side or the starboard side.

Q. Why is greater care necessary in inspecting *preformed* type wire rope when this is used for cargo falls, topping lifts, slings, guys, or other gear on a ship?

A. Greater care is necessary in inspecting preformed type wire rope because outer wires will wear thinner before breaking and broken wire ends will not protrude from the rope to injure workmen's hands, to nick and distort adjacent wires, or to abrade on sheaves and drums. Because of the fact that broken wire ends do not porcupine, they are not as noticeable as they are in nonpreformed wire ropes.

Q. a. Describe the proper method of closing a valve in cargo piping gear, and the reasons for doing it in this manner.

b. Describe the proper method of opening a valve in cargo piping.

A. a. When closing a valve the valve should be screwed down, then opened a turn or two to permit any grit or particles that may have lodged on the valve seat to be washed out by the liquid flowing rapidly through the narrowed space, and then shut down tight.

b. When a valve is opened it should be turned back down a quarter turn in order to be sure that it is not jammed in the open position.

Q. Define: (a) Viscosity.
(b) Ullage.
(c) Flame arrestor.

A. (a) Viscosity is the tendency of fluid to resist movement.

(b) Measurement taken with a steel tape from lip of ullage hole to surface of liquid; also, the depth of space in a trunk not occupied by oil.

(c) Flame arrestor is a unit, constructed of a number of corrugated plates pressed together, which allows vapor to pass through from the inside, but stops flame from the outside.

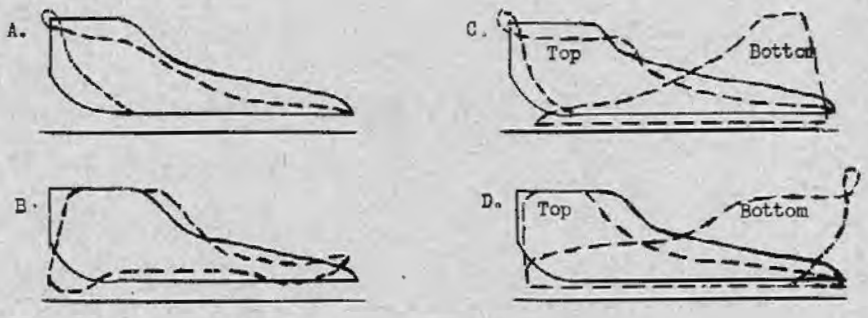
Q. In New York (Zone +5) a time signal was heard and at 1400 eastern standard time, the chronometer read 18h–35m–38s.

What was the chronometer error?

A. 24m–22s slow.

STEAM INDICATOR

Q. The solid lines of the below diagrams reflect ideal conditions in the operation of a H.P. reciprocating engine. What faults are suggested by the dotted diagrams in A, B, C, and D?



A.A.—Excessive angle of advance as shown by all functions being too early.

B.—Angle of advance too small as shown by all functions being too late.

C.—Valve stem too short.

D.—Valve stem too long.

appropriate gangway and quickly, without protracted involvement at the hands of landing agents, baggage masters, porters or Arab guides.

Each passenger and his visitors is directed to a gangway servicing the appropriate class area. Ordinarily the gangways are rigged from the dock into a sideport adjacent to the purser's lobby. Every effort is made to keep the gradient to 10 degrees or less.

The planks are constructed of steel and usually designed to a 150 pounds per square foot load. They are only wide enough for two persons to pass comfortably. Each is fitted with railings, side curtains, side panels, a canopy, and indirect lighting. The deck is covered with a ribbed-rubber nonskid mat or a coir runner.

The gangway prow ramps will adjust themselves automatically to rise and fall. For further protection we used to provide a heavy link mat over these ramps. When women's heels became smaller, we changed to solid rubber rugs perforated with a ½ inch hole at about 4-inch centers. It was only after we observed on a number of occasions, husky quartermasters clutching fashionably dressed women to their uniformed chests, that we discovered that continental cobblers now dictate that women's heels be no larger than the head of a pin. Tiny as our mat vents were, they still tripped these ladies and the quartermasters had their arms full. Romance is easy enough to come by on any ship without falling over it on the gangway—so we installed solid rubber runners.

Upon entering the foyer, sufficient vessel personnel: stewards, stewardesses, nurses, pursers, and others are assigned to assist and direct all passengers, particularly the aged, the infirm, those with small children or the strictly confused. All of these are quickly removed from circulation to their cabins to minimize congestion during the embarkation. Once the passenger is in his cabin, the room steward takes over; introducing himself, offering service and generally making conversation. This is designed to put the passenger at his ease and to acquaint him with the new environment. As soon as possible, the room steward will call the passenger's attention to the list of general safety rules posted under glass on every cabin dresser*. The degree of safety instruction at this stage is in ratio to the temperament of the passengers, the congestion in the cabin, and how many times the steward has to refill the ice buckets.

*See back cover.

Having located the primary necessities of shipboard survival—bed and bath, and being satisfied that he can lock the cabin door, the passenger then ventures forth in search of other necessities—such as a bar stool or another passenger. From a vantage point on the promenade or weather deck the passenger watches the disembarkation of visitors and the sailing of the ship. The deck stewards as well as the lounge and bar stewards, under the direct supervision of a senior supervisor watch the passengers carefully and take advantage of every opportunity to caution them about accident potentials, such as heavy doors, raised sills, and slippery decks.

The sounding of the "All Visitors Ashore" gong and the broadcast of this notice on the ship's PA system concentrates traffic in the ship's passageways, on the stairways, in the foyers, and over the gangways to the dock. Everyone, it seems, is reluctant to move—company personnel included. At this specific time, all ship's staff officers who can be spared from their normal duties in the purser's, steward's and deck departments concentrate on supervising these vulnerable accesses to insure a rapid, safe flow of traffic. Invariably, the gangway is attended by the chief mate himself. Diligence, watchfulness, tact, and a high degree of persuasion is very often necessary to insure that emotional and wobbly visitors get safely back to terra firma.

When the lines are cast off and the ship is safely away from the dock, all supervisory personnel directly concerned with the service and comfort of passengers immediately begin to prepare these passengers for their sea voyage through the distribution of schedules, notices, bulletins, and by personal contact. Nearly every routine advice contains or implies some safety warning.

Should adverse weather be forecast when the vessel reaches the open sea, the staff must use a direct approach to safety by broadcasting and personal contact to advise passengers. They are requested not to move about any more than is necessary; to remain seated in fixed furniture or to lie down until they are entirely used to the motion of the ship in a seaway. Aged and infirm passengers are assisted to and from the dining room on prearranged schedules. Children are carefully supervised and their parents warned not to leave them unattended. Should adverse weather be encountered, the purser refrains from scheduling any dances or deck sports for the first 48 hours at sea. Sedentary entertainment is emphasized such as cards, movies, and reading. It is not until passengers "get their sea legs" and become better acquainted, that they are encouraged to any freedom of movement.

After the first 2 or 3 days at sea, particularly in the Pacific ocean, where voyages are of longer duration than in the Atlantic, passengers need only to be watched to see that they observe the normal safety rules and that they do not disregard heavy weather precautions, both in cabins and in the dining rooms. Contrary to general belief, most Pacific ocean storms are localized. With the proper warning and evaluation of conditions, the ship's master can often take evasive action for the comfort of his passengers and to prevent damage to his vessel. A group of shipowners on the Pacific coast subscribe to a private weather forecasting service which supplies expert analysis and advice to each operator in this regard. The American President Lines has experienced outstanding results from this service. It is necessary to point out here however that the Atlantic operators with ships restricted to ocean tracks which are laid out to minimize collisions at sea, do not have as much latitude for diversionary maneuvers.

The ill, the aged, and the infirm will always be a problem at sea, and the only answer is personal attention. Doctors, nurses, room stewards and bellboys are invariable assigned direct responsibility for this class of passenger.

Have you ever taken notice of the fact that senior ship's officers very seldom have large families? The reason for this is not what you might suspect. It has little if anything to do with physiology or absence on long voyages. It is more likely that these men have learned the truth about children the hard way. Children are naturally unrestrained; they lack inhibition and sophistication. Children can improvise faster than W. C. Fields caught with his hand in the police chief's wallet. For the protection of all passengers aboard ship and to offset any considerable degree of parental indifference, it is absolutely necessary for the staff to organize an elaborate routine devised to amuse, defeat, occupy, and educate these juveniles. In the last analysis, all children accept discipline. They seem to invite and expect it. In cases where discipline is required, the problem is generally not with the child but with his parents.

An investment in a special children's area, in games and a permanent library of movie cartoons without much regard for age or language solves most of the problem. Also, se-

lect and pay good money for a qualified children's nurse and entertainment director and leave enough in the budget to take care of a bit of psychiatric relief for the purser and the chief steward when the voyage is over.

We have found it a very good policy to muster the children immediately before their first entertainment program aboard ship—to give them a firm, sensible, brief talk on not romping around the deck, keeping fingers out of the doors, sliding down bannisters, keeping out of the way of adults who want to read or rest, and asking them not to swim in the ocean. Such a talk can be illustrated on a blackboard, by slide cartoons, or in a comic magazine.

SELLING SAFETY

On a passenger ship, the most effective means of getting the idea of safety across emphatically and graciously is by personal contact. This is not as difficult as one might imagine when you consider the total number of company personnel and crew aboard an American ship to whom the passengers are exposed at one time or another before and in the course of the voyage.

To begin with, every passenger must be individually solicited and booked and sometimes this process requires weeks of consideration and consultation with company sales personnel and experienced travel agents. Secondly, there is individual contact when travel documents are being completed. Third, each boarding passenger is handled separately by the clerk or by a purser. And finally by a room steward or bell boy.

With a little discreet understanding and organization, some special hint on shipboard safety can be dropped by each person involved in such personal contact. Any reluctance of sales personnel to discuss this aspect of making a sea voyage should be straightened out by management. Later, the room stewards in the course of their duties in the cabins and the deck stewards about the decks have ample opportunity to fill in more details. In the first-class accommodations, the room stewards seldom handle more than 15 people per day and each dining room steward, a dozen. The normal attending to passengers by the senior pursers, senior stewards and to a lesser degree, the chief deck and engine officers, opens other opportunities of stressing safety matters. Circumstances permitting, the masters should lose no opportunity to promote the topic of safety in discussions with passengers.

As a matter of routine in the American President Lines, regular safety meetings are held at sea on board ship. These meetings are supervised by the chief mate and attended by each department head and an elected, unlicensed member of each department. The company accident prevention office provides discussion material and solicits comments and criticisms. Any accidents taking place since the last meeting are reviewed, analyzed, and a report mailed to the accident prevention office for further action. The effectiveness of these meetings and the subject interest they stimulate is graphically illustrated by a recent admonishment from the master of the SS *President Grant* . . .

"Analyze yourself without fear or favor—in the unsafe practices you perform."

On passenger vessels this procedure receives special emphasis due to the fact that there are more passengers and personnel involved. Necessarily, there is a greater incidence of accidents and a greater necessity to promptly analyze and take immediate corrective action on the vessel itself.

As a matter of interest, analysis of the serious accidents suffered by passengers in American President Lines vessels in the years 1952 through 1957 indicates the following record:

CAUSE OF ACCIDENTS

41 Falling on Same Level.
20 Caught in, on or Between.
18 Striking Against an Object.

PORTION OF BODY INJURED

14 Fractured Hands.
13 Contusion, Abrasion Legs.
12 Fractured Arms.

WHERE OCCURRED

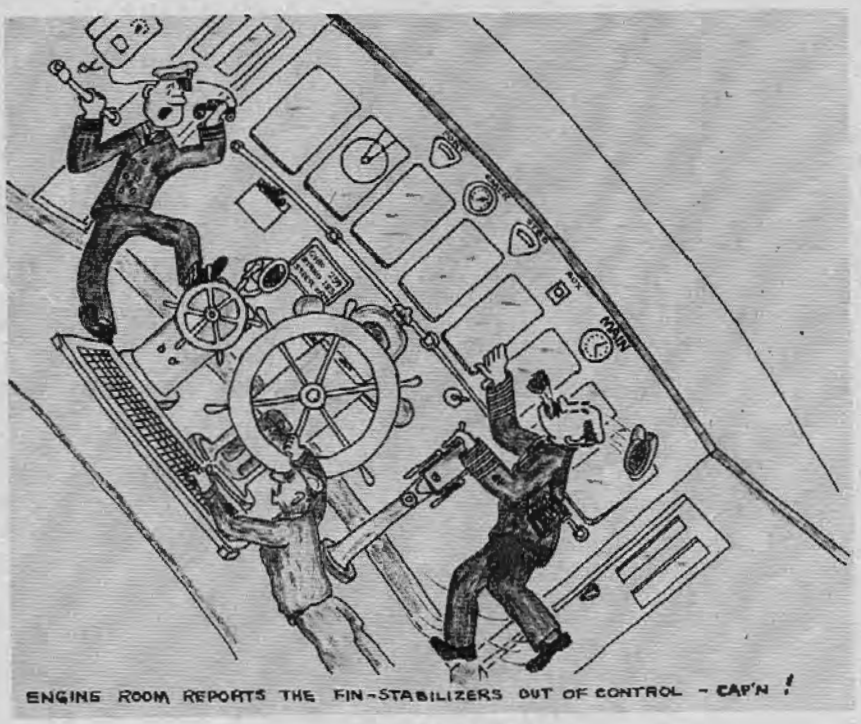
34 Staterooms.
32 Public Rooms.
11 Decks, Exposed.

In other words, the average situation involved a passenger who fell, in a stateroom bruising or breaking a leg or arm on the furniture or deck.

Capt. R. W. Sweetser, master of the Round the World Mariner, the SS *President Hayes,* put all of this in a nutshell in a recent safety meeting with his crew and I quote him:

"Safety aboard ship is not a blaze of well-spoken words, nor yet well written logic, but the day to day, constant, persevering watchfulness to correct, to educate, to readjust, to show, to explain—chipping away at carelessness, negligence, foolhardiness little by little—until at last you have a reasonable amount of safety."

All photographs *Courtesy American President Lines.*



MERCHANT MARINE STATISTICS

There were 960 vessels of 1,000 gross tons and over in the active ocean-going United States merchant fleet on January 1, 1959, according to the Maritime Administration. This was 13 more than the number active on December 1, 1958, and 23 less than the number active a year ago, on January 1, 1958.

There were 25 Government-owned and 935 privately owned ships in active service. These figures did not include privately owned vessels temporarily inactive, or Government-owned vessels employed in loading grain for storage. They also exclude 27 vessels in the custody of the Departments of Defense, State, and Interior.

There was an increase of 11 active vessels and a decrease of 9 inactive vessels in the privately owned fleet. One new combination passenger-cargo ship, the *Argentina*, and two new tankers, the *Saroula* and the *Sister Katingo*, were delivered into service, and 1 freighter, the *Valiant Effort*, was returned from foreign to United States flag. Two freighters, the *Quirigua* and the *Veragua*, were transferred to foreign flag. This increased the total privately owned fleet by a net of 2 to 1,007, which was 5 less than the number privately owned on January 1, 1958.

The Maritime Administration's active fleet was two more than that of the previous month, while its inactive fleet decreased by nine. Thirteen Liberty ships were sold for scrap. Five transports and one tanker owned by the Navy were turned over to the Administration for lay-up in the National Defense Reserve Fleet.

Two new ships, a ferry and a bulk carrier, were ordered. One new passenger-cargo ship and two new tankers were delivered for United States flag, and one tanker, the *Olympic Falcon*, was delivered to foreign flag. The converted T2 tanker *Gulfseal* was delivered, and two cargo ship conversions to container ships were ordered. The total of large merchant ships on order or under construction in United States shipyards dropped by 1 vessel to 85, 30 ships less than were on order on January 1, 1958.

Seafaring jobs on active ocean-going United States flag ships of 1,000 gross tons and over, excluding civilian seamen manning Military Sea Transportation Service ships were 51,761. Prospective officers in training in Federal and State nautical schools nnmbered 1,945.

MERCHANT MARINE PERSONNEL STATISTICS

MERCHANT MARINE OFFICER LICENSES ISSUED

QUARTER ENDING 31 DECEMBER 1958

DECK

Grade	Original	Renewal
Master:		
Ocean	51	517
Coastwise	12	42
Great Lakes	2	25
B. S. & L.	10	95
Rivers	3	52
Radio officer licenses issued	13	45
Chief mate:		
Ocean	38	123
Coastwise		3
Mate:		
Great Lakes		
B. S. & L.		
Rivers		
Second mate:		
Ocean	43	119
Coastwise		2
Third mate:		
Ocean	30	62
Coastwise		
Pilots:		
Great Lakes	5	9
B. S. & L.	104	27
Rivers	86	31
Master: Uninspected vessels	9	13
Mate: Uninspected vessels	21	36
Motorboat	148	338
Total	575	1,539
Grand total	2,114	

ENGINEER

Grade	Original	Renewal
STEAM		
Chief engineer:		
Unlimited	33	540
Limited	4	90
First assistant engineer:		
Unlimited	32	220
Limited	1	12
Second assistant engineer:		
Unlimited	37	241
Limited	1	1
Third assistant engineer:		
Unlimited	31	183
Limited	1	
MOTOR		
Chief engineer:		
Unlimited	9	107
Limited	41	132
First assistant engineer:		
Unlimited	10	20
Limited	13	16
Second assistant engineer:		
Unlimited	5	20
Limited	1	
Third assistant engineer:		
Unlimited	4	341
Limited	6	
Chief engineer: Uninspected vessels	6	10
Assistant engineer: Uninspected vessels	1	1
Total	236	1,934
Grand total	2,170	

WAIVER OF MANNING REQUIREMENTS

Waivers	Atlantic Coast	Gulf Coast	Pacific Coast	Great Lakes	Total
Deck officers substituted for higher ratings					
Engineer officers substituted for higher ratings			1		1
Ordinary seamen for able seamen					
Wiper or coalpassers for qualified member engine dept.					
Total waivers			1		1
Number of vessels			1		1

INVESTIGATING UNITS

Coast Guard Merchant Marine Investigating Units and Merchant Marine Details investigated a total of 3,564 cases during the fourth quarter of 1958. From this number, hearing before examiners resulted involving 76 officers and 231 unlicensed men. In the case of officers, 3 licenses were revoked, 9 were suspended without probation granted, 15 were suspended with probation granted, 16 cases were dismissed after hearing, and 2 hearings were closed with admonitions. Of the unlicensed personnel, 24 documents were revoked, 24 were suspended without probation, 62 were suspended with probation granted, 11 hearings were closed with admonition, and 35 cases were dismissed after hearing. Five licenses and 86 documents were voluntarily surrendered.

ORIGINAL SEAMEN'S DOCUMENTS ISSUED

Type of document	Atlantic Coast	Gulf Coast	Pacific Coast	Great Lakes and rivers	Total
Staff Officer	29	8	22	5	64
Continuous Discharge Book	1				1
Merchant Mariner's Documents	1,221	407	552	461	2,641
AB any waters unlimited	98	28	38	20	184
AB any waters, 12 months	54	7	17	39	117
AB Great Lakes, 18 months	3		1	23	27
AB Tugs and Towboats, any waters	1	2			3
AB Bays and Sounds	3		1		4
AB Seagoing Barges		1	1		2
Lifeboatman	83	23	60	3	169
QMED	78	53	34	56	221
Radio Operators	2	1	5		8
Certificate of Service	1,131	360	516	400	2,407
Tankerman	39	57	6	45	147
Total	2,743	947	1,253	1,052	5,995

NUMBERED AND UNDOCUMENTED VESSELS

The table below gives the cumulative total of undocumented vessels numbered under the provisions of the act of June 7, 1918, as amended (46 U.S.C. 288), in each Coast Guard district by Customs ports for the quarter ended 31 December 1958. Generally speaking, undocumented vessels are those machinery-propelled vessels of less than 5 net tons engaged in trade which by reason of tonnage are exempt from documentation. They also include all other vessels propelled in whole or in part by machinery which have not been issued marine documents by the Customs, owned in the United States and found on the navigable waters thereof.

Coast Guard District	Customs Port	Total
1 (Boston)	(4) Boston	19,402
	(1) Portland, Maine	10,307
	(2) St. Albans	960
	(5) Providence	5,583
	Total	36,252
2 (St. Louis)	(45) St. Louis	13,609
	(12) Pittsburgh	2,656
	(34) Pembina	307
	(35) Minneapolis	3,561
	(40) Indianapolis	7,535
	(42) Louisville	3,119
	(43) Memphis	7,186
	(46) Omaha	584
	(47) Denver	54
	Total	38,671
3 (New York)	(10) New York	58,523
	(6) Bridgeport	11,716
	(11) Philadelphia	25,123
	Total	95,362
5 (Norfolk)	(14) Norfolk	18,720
	(13) Baltimore	26,475
	(15) Wilmington, N. C	9,753
	Total	54,948
7 (Miami)	(18) Tampa (part)	33,191
	(16) Charleston	1,906
	(17) Savannah	3,043
	(49) San Juan	568
	(51) St. Thomas	153
	Total	38,861
8 (New Orleans)	(20) New Orleans	23,624
	(18) Tampa (part)	560
	(19) Mobile	9,643
	(21) Port Arthur	5,198
	(22) Galveston	11,882
	(23) Laredo	2,156
	(24) El Paso	34
	(43) Memphis (part)	65
	Total	53,162
9 (Cleveland)	(41) Cleveland	13,322
	(7) Ogdensburg	3,038
	(8) Rochester	7,486
	(9) Buffalo	4,868
	(36) Duluth	2,846
	(37) Milwaukee	5,028
	(38) Detroit	26,576
	(39) Chicago	11,467
	Total	74,621
11 (Long Beach)	(27) Los Angeles	18,364
	(25) San Diego	3,185
	(26) Nogales	267
	Total	21,816
12 (San Francisco)	(28) San Francisco	20,314
13 (Seattle)	(30) Seattle	25,153
	(29) Portland, Oregon	9,521
	(33) Great Falls	855
	Total	35,529
14 (Honolulu)	(32) Honolulu	4,173
17 (Juneau)	(31) Juneau	8,220
	Grand Total	481,929

AMENDMENTS TO REGULATIONS

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

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

[CGFR 58-57]

PART 10—LICENSING OF OFFICERS AND MOTORBOAT OPERATORS AND REGISTRATION OF STAFF OFFICERS

Subpart 10.05—Professional Requirements for Deck Officers' Licenses (Inspected Vessels)

MARITIME ADMINISTRATION RADAR OBSERVER SCHOOLS; NOTICE OF APPROVAL

Inspections of the Maritime Administration Radar Observer Schools at New York, San Francisco, and New Orleans were made after receipt of a Maritime Administration letter dated June 17, 1958, requesting acceptance of certificates of successful completion of the course of instruction at Maritime Administration's Radar Observer Schools as evidence of the holder's qualification as a "radar observer" so that such holder need not take a further examination. These inspections have been concluded with favorable results.

The new regulations, designated 46 CFR 10.05-46(d)(1), is added by this document in order to inform all persons concerned that certain Maritime Administration Radar Observer Schools are approved. The holders of certain certificates of successful completion of the course of instruction of such Maritime Administration's Radar Observer Schools may present such certificates as evidence of qualification as "radar observer" and be exempt from taking the examination specified in 46 CFR 10.05-46(b). The "notice of approval" of the Maritime Administration's Radar School at New York, New York, dated September 16, 1958, and published in the Federal Register of September 25, 1958 (23 F.R. 7467), is canceled and superseded by the approval as set forth in this document.

By virtue of the authority vested in me as Commandant, United States

Coast Guard, by Treasury Department Orders 120, dated July 31, 1950 (15 F.R. 6521), 167–14, dated November 26, 1954 (19 F.R. 8026), 167–20, dated June 18, 1956 (21 F.R. 4894), and CGFR 56–28, dated July 24, 1956 (21 F.R. 5659), to promulgate regulations in accordance with the statutes cited with the regulations below, the following amendment designated § 10.05–46(d)(1) is prescribed and shall become effective upon the date of publication of this document in the Federal Register.

(Federal Register of January 31, 1959)

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

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

[CGFR 58–55]

PART 185—OPERATIONS

Subpart 185.20—Miscellaneous Operating Requirements

PILOT RULES

The Coast Guard's attention has been directed to the text of 46 CFR 185.20–5, which states that persons navigating small passenger vessels shall comply with the applicable sections of the Pilot Rules covering the route stipulated in the certificate of inspection. The present wording of this regulation could be misleading in that an ocean route may be stipulated on the certificate of inspection, while the vessel could be navigating on certain inland waters.

By virtue of the authority transferred to me as Commandant, United States Coast Guard, by Treasury Department Order 167–20, dated June 18, 1956 (21 F.R. 4894), to promulgate regulations in accordance with the statutes cited with the regulations below, the following amendment to § 185.20–5(a) is prescribed and shall become effective on and after the date of publication of this document in the Federal Register:

§ 185.20–5 Pilot Rules

(a) Persons operating these vessels shall comply with the applicable sections of the Pilot Rules covering the waters on which the vessel is navigated.

(Sec. 3, 70 Stat. 152; 46 U.S.C. 390b)

Dated: December 30, 1958.

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

[F. R. Doc. 59-65; Filed, Jan. 5, 1959; 8:46 a.m.]

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 7–58

December 17, 1958.

Subj: Applicability of Laws and Regulations to Vessels in Port in Respect to Employment of Seamen.

1. *Purpose.* The purpose of this circular is to call attention to the requirement that persons employed temporarily as crew members during a vessel's stay in port must be in possession of appropriate seamen's documents validated for emergency service.

2. *Background.* It has recently come to the Commandant's attention that in some cases seamen have been accepted on board vessels to serve as standby or relief for regular crew members without being checked to see if they are in possession of the proper documents. In one such instance the seaman's merchant mariner's document was at the time under suspension.

3. *Discussion.*

a. Section 121.01 of the Code of Federal Regulations (title 33, chapter I, subchapter K—Security of Vessels, part 121, as amended) states in part that:

> "The vessels described in paragraph (a) of this section include those at anchor or made fast to a dock, but not those laid up or dismantled or out of commission."

This section defines "employment" as follows:

> "By 'employed' or 'employment' is meant the engagement of any person to fill any licensed or certificated berth on board ship whether or not under articles and includes those engaged as standby, relief or other capacities."

b. Section 672(i) of title 46, U.S. Code provides:

> "It shall be unlawful to employ any person, or for any person to serve aboard any merchant vessel of the United States, below the rating of licensed officer, who has not a certificate of service issued by a board of local inspectors, and anyone violating this section shall be liable to a penalty of $100 for each offense."

4. *Action.* In order to avoid the violation of the above sections, employers of seamen should take steps to ensure that any person employed as a relief or standby member of the crew of a vessel coming within the purview of 33 CFR 121.01 and 46 U.S.C. 672(i) is in possession of a U.S. merchant mariner's document containing a special validation endorsement. His document should also be endorsed for the rating in which he is to serve, or if employed in a licensed capacity he should possess appropriate license.

H. T. JEWELL
Rear Admiral, USCG
Chief, Office of Merchant Marine Safety

By direction of the Commandant.

CERTIFICATES OF INSPECTION

Following is a list of United States vessels with active Coast Guard Certificates of Inspection as of January 1, 1959:

Large Passenger Vessels	508	
Small Passenger Vessels	2,819	
Cargo and Miscellaneous	1,984	
Tank Vessels:		
Steam Tank Ships	344	
Motor Tank Ships	188	
Tank Barges:		
Ocean, Coastwise and Great Lakes	246	
Manned		92
Unmanned		154
Inland	2,131	
Manned		138
Unmanned		1993
Total Vessels	8,220	

ARTICLES OF SHIPS' STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from 1 January to 31 January 1959, inclusive, for use on board vessels in accordance with the provisions of Part 147 (46 CFR 146–147) of the Dangerous Cargo Regulations are as follows:

CERTIFIED

The Penetone Co., Tenafly, N.J., Certificate No. 125, dated 9 Jan. 1959, PENESOLVE 814.

The Penetone Co., Tenafly, N.J., Certificate No. 218, dated 9 Jan. 1959, FORMULA 861.

The Penetone Co., Tenafly, N.J., Certificate No. 236, dated 9 Jan. 1959, PENESOLVE 900.

The Penetone Co., Tenafly, N.J., Certificate No. 369, dated 9 Jan. 1959, FERROTONE.

The Penetone Co., Tenafly, N.J., Certificate No. 372, dated 9 Jan. 1959, FORMULA 867.

Maritec Corp., 42 Broadway, New York 4, N.Y., Certificate No. 373, dated 16 Jan. 1959, MARITEC DE-GREASER.

Maritec Corp., 42 Broadway, New York 4, N.Y., Certificate No. 374, dated 29 Jan. 1959, MARITEC TANK CLEANER POWDER FORMULA 20.

Maritec Corp., 42 Broadway, New York 4, N.Y., Certificate No. 356, dated 8 Jan. 1959, MARITEC ELECTRICAL SOLVENT.

Maritec Corp., 42 Broadway, New York 4, N.Y., Certificate No. 375, dated 29 Jan. 1959, MARITEC COMBUSTION CATALYST.

Maritec Corp., 42 Broadway, New York 4, N.Y., Certificate No. 376, dated 29 Jan. 1959, MARITEC DIESEL FUEL TREATMENT.

Maritec Corp., 42 Broadway, New York 4, N.Y., Certificate No. 377, dated 29 Jan. 1959, MARITEC DUAL PURPOSE FUEL TREATMENT.

AFFIDAVITS

The following affidavits were accepted during the period from 15 December 1958 to 15 January 1959:

Small Tube Products, Inc., P.O. Box 1032, Altoona, Pa., TUBING (NON-FERROUS).

Hydril Co., 714 West Olympic Blvd., Los Angeles 15, Calif., VALVES.

Walz & Krenzer, Inc., 22 Flint St., Rochester 8, N.Y., VALVES.

Hex Valve Co., 1425 W. 15th St., Long Beach 13, Calif., VALVES.

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. Date of each publication is indicated following title.

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
123	Rules and Regulations for Tank Vessels. 4–1–58
129	Proceedings of the Merchant Marine Council. Monthly
169	Rules to Prevent Collisions of Vessels and Pilot Rules for Certain Inland Waters of the Atlantic and Pacific Coasts and of the Coast of the Gulf of Mexico. 4–1–58
172	Pilot Rules for the Great Lakes and Their Connecting and Tributary Waters. 4–1–58
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
182	Specimen Examinations for Merchant Marine Engineer Licenses. 5–1–57
184	Pilot Rules for the Western Rivers. 7–1–57
190	Equipment Lists. 4–1–58
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel. 9–15–55
200	Marine Investigation Regulations and Suspension and Revocation Proceedings. 7–1–58
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
249	Merchant Marine Council Public Hearing Agenda. Annually
256	Rules and Regulations for Passenger Vessels. 3–1–57
257	Rules and Regulations for Cargo and Miscellaneous Vessels. 6–1–55
258	Rules and Regulations for Uninspected Vessels. 7–1–55
259	Electrical Engineering Regulations. 9–2–58
266	Rules and Regulations for Bulk Grain Cargo. 2–13–53
267	Rules and Regulations for Numbering Undocumented Vessels. 1–15–53
268	Rules and Regulations for Manning of Vessels. 9–3–57
269	Rules and Regulations for Nautical Schools. 11–1–53
270	Rules and Regulations for Marine Engineering Installations Contracted for Prior to July 1, 1935. 11–19–52
290	Pleasure Craft. (Formerly "Motorboats"). 1–2–59
293	Miscellaneous Electrical Equipment List. 4–15–58
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf. 1–2–57
323	Rules and Regulations for Small Passenger Vessels. (Not More Than 65 Feet in Length) 6–1–58
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 below.

Changes Published During January 1959

The following have been modified by Federal Register:

CG–323 Federal Register January 6, 1959.

CG–191 Federal Register January 31, 1959.

U. S. GOVERNMENT PRINTING OFFICE: 1959

SAFETY BULLETIN

SO THAT YOU MAY ENJOY YOUR VOYAGE, AND AVOID ANY INJURY, NO MATTER HOW SLIGHT, WE OFFER YOU THESE SIMPLE RULES OF SHIPBOARD SAFETY:

GENERAL SAFETY RULES

1. WALK CAREFULLY OVER WET SPOTS ON THE DECKS, NEVER RUN WHEN MOVING ABOUT THE SHIP.
2. PLEASE DO NOT PERMIT SMALL CHILDREN TO RUN OR PLAY ON STAIRWAYS, OR IN PASSAGEWAYS AND DO NOT ALLOW ON DECKS UNATTENDED.
3. EXTINGUISH LIGHTED CIGARS, CIGARETTES AND MATCHES. THEY SHOULD NOT BE THROWN OVER THE SIDE OF THE SHIP, BUT PLACED IN THE PROPER RECEPTACLES.
4. DO NOT DISCARD REFUSE OF ANY KIND ON THE DECKS BUT PLACE IN CONTAINERS LOCATED ABOUT THE SHIP.
5. CALL YOUR ROOM STEWARD OR BELL BOY TO HELP YOU OPEN PORT HOLES AND DEADLIGHTS. DO NOT TRY TO DO IT YOURSELF.
6. DO NOT REMOVE FURNITURE FROM SAFETY HOOKS. IF YOURS IS AN UPPER BERTH, USE THE BERTH LADDER WHICH SHOULD BE SECURELY IN PLACE.
7. THERE IS PLENTY OF ELECTRICITY SO PLEASE USE THE LIGHTS WHEN MOVING ABOUT A DARKENED ROOM ..... IT'S SAFER.
8. AVOID HOLDING ON TO FRAMES OF OPEN DOORS AS THE SHIP'S MOTION MAY CAUSE THE DOOR TO CLOSE ON YOUR HAND OR FINGERS. BE SURE TO CLOSE CABIN DOORS SECURELY OR HOOK OPEN.
9. DO NOT WEAR HIGH HEELS WHEN PLAYING DECK GAMES.
10. DO NOT SMOKE IN BED.

SOMETIMES THIS SHIP MAY ENCOUNTER ROUGH WEATHER, WHICH WILL CAUSE THE VESSEL TO PITCH AND ROLL. WHEN THIS OCCURS, WE SUGGEST THAT YOU ALSO OBSERVE THE FOLLOWING SAFETY SUGGESTIONS.

ROUGH WEATHER PRECAUTIONS

1. HOLD ON TO SAFETY ROPES, HANDRAILS, OR SECURED FURNITURE, WHEN CROSSING THROUGH OPEN FOYERS AND PUBLIC ROOMS.
2. USE HANDRAILS IN PASSAGEWAYS, ON STAIRWAYS AND IN BATHROOMS.
3. DO NOT STROLL ABOUT THE SHIP UNNECESSARILY, BUT REMAIN SEATED IN FURNITURE WHICH IS FASTENED SECURELY.
4. BRACE YOURSELF SECURELY WHEN SEATED IN STRAIGHT-BACKED CHAIRS.
5. IF YOUR CHAIR SHOULD START TO MOVE WHILE SEATED IN THE DINING ROOM DURING MEALS, HOLD ON TO THE TABLE, DO NOT TRY TO SAVE THE TABLE SERVICE, DISHES OR FOODS.