

# PROCEEDINGS OF THE MERCHANT MARINE COUNCIL UNITED STATES COAST GUARD

The printing of this publication has been approved by the Director of the Bureau of the Budget, March 11, 1952.

This copy for not less than 20 readers.  
**PASS IT ALONG**

CG 129



Vol. 10

August 1953

No. 8

When you get what you want in your struggle for pelf,  
And the world makes you king for a day,  
Just go to a mirror and look at yourself,  
And see what that man has to say.

For it isn't your Father or Mother or Wife  
Who judgment upon you must pass,  
The fellow whose verdict counts most in your life  
Is the one staring back from the glass.



He's the fellow to please (never mind the rest),  
For he is with you clear up to the end,  
And you've passed your most dangerous, difficult test  
If the man in the glass is your friend.

You may be like Jack Horner and chisel a plum,  
And think you're a wonderful guy,  
But the man in the glass says you're only a bum  
If you can't look him straight in the eye.

You may fool the whole world down the pathway of life,  
And get pats on the back when you pass,  
But your final reward will be headaches and tears—  
If you cheat the MAN IN THE GLASS.

# MERCHANT MARINE COUNCIL

Published monthly at Coast Guard Headquarters, Washington 25, D. C., under the auspices of the Merchant Marine Council, in the interest of safety at sea. Special permission for republication, either in whole or in part, with the exception of copyrighted articles or pictures, is not required provided credit is given to the Proceedings of the Merchant Marine Council.

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of the United States  
Coast Guard

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CAPTAIN G. A. LITTLEFIELD, USCG  
*Executive Secretary and Member*

MR. K. S. HARRISON  
*Chief Counsel*

For each meeting two District Commanders and three Marine Inspection Officers are designated as members by the Commandant.

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### DISTRIBUTION (SDL 54)

A: a, aa, b, c, d, dd (2); remainder (1).  
B: e (35); c (16); g (2); f (4); h (3); remainder (1).  
C: a, b, c, d, e, f, g, i, m, o (1).  
D: i (5); a, b, c, d, e, f, g, h, j, k, l, m (1).  
E: o (New London only) (1).  
List 141 M.  
List 111.

Notice is given to those requesting to be retained or to be placed on the mailing list for this periodical that due to the great number of requests received it has not been possible to revise the mailing list prior to the printing of this issue. It is anticipated the revised mailing list will be put into effect when the September 1953 issue is published.

## NATIONS ACCEPTING THE 1948 CONVENTION FOR SAFETY OF LIFE AT SEA

Following is the latest Department of States' list of countries that have accepted the 1948 Convention for the Safety of Life at Sea:

Country	Acceptances deposited, Date of deposit	Effective Date
United Kingdom.....	September 30, 1949.....	November 19, 1952
New Zealand.....	December 29, 1949.....	November 19, 1952
United States of America.....	January 5, 1950.....	November 19, 1952
France.....	February 8, 1950.....	November 19, 1952
Netherlands.....	April 18, 1950.....	November 19, 1952
Sweden.....	May 16, 1950.....	November 19, 1952
Norway.....	June 12, 1950.....	November 19, 1952
Union of South Africa.....	August 18, 1950.....	November 19, 1952
Iceland.....	October 19, 1950.....	November 19, 1952
Portugal.....	November 30, 1950.....	November 19, 1952
Canada.....	February 1, 1951.....	November 19, 1952
Pakistan.....	February 1, 1951.....	November 19, 1952
Denmark.....	October 15, 1951.....	November 19, 1952
Yugoslavia.....	November 13, 1951.....	November 19, 1952
Italy.....	November 19, 1951.....	November 19, 1952
Belgium.....	December 5, 1951.....	November 19, 1952
Israel.....	July 2, 1952.....	November 19, 1952
Japan.....	July 23, 1952.....	November 19, 1952
Philippines.....	October 2, 1952.....	November 19, 1952
India.....	November 19, 1952.....	November 19, 1952
Spain.....	December 26, 1952.....	March 26, 1953
Liberia.....	January 13, 1953.....	April 13, 1953

### Extensions Notified

Alaska, Hawaii, and Puerto Rico.....	November 19, 1952
Spanish Protectorate of Morocco and the Spanish Colonies.....	March 26, 1953

# MARINE SAFETY RESPONSIBILITY

The following is a condensation of an address entitled "U. S. Coast Guard Merchant Marine Safety Responsibility," which was delivered by Captain G. A. Littlefield, USCG, Executive Secretary, Merchant Marine Council, to U. S. Navy and U. S. Coast Guard Student Officers at Massachusetts Institute of Technology May 13, 1953. It provides a broad picture of Coast Guard activities in the marine safety field, which should be of interest to many readers. Inasmuch as August 4, 1953, is the one hundred sixty-third anniversary date of the United States Coast Guard, it is especially appropriate at this time.

Twenty-eight years ago, when I was commissioned, the Coast Guard was primarily a seagoing law enforcement agency of the Government . . . We saved lives and property at sea, as we still do, but there our responsibilities ended. In many cases the cause and correction of such disasters were beyond our control.

Since 1938 a great change has been made in the responsibilities of the Coast Guard. The words "safety of life and property at sea" now have real significance in describing our duties . . .

It was decided to integrate the following services into the Coast Guard: The Lighthouse Service; and, The Bureau of Marine Inspection and Navigation.

Each of these services had functions and responsibilities related to maritime safety. Combined under the Coast Guard they comprised a stronger and more effective organization.

This new Coast Guard now has wide responsibility for the safety of life and property at sea . . . Think of a wheel with 13 spokes. Write on the hub, the words "Safety at Sea and on the Inland Waterways." Around the rim write:

- First. Inspection of Ships Plans.
- Second. Approval of Ships equipment.
- Third. Regular Inspection of Ships and Equipment.
- Fourth. Licensing and Certifying Ship's Personnel.
- Fifth. Manning Requirements for Merchant Vessels.
- Sixth. Rules of the Road.
- Seventh. Navigational Aids (Buoyage, Lights, and Electronics).
- Eighth. Air Sea Rescue (Ships, Planes).
- Ninth. Lifeboat Rescue Stations.
- Tenth. Ocean Stations and Ice Patrol.
- Eleventh. Educational Program for Safety in Small Craft.
- Twelfth. Law Enforcement and Security of Harbors.
- Thirteenth. Emergency Readiness Program.

In general terms this shows the present duties of the Coast Guard . . . covering maritime safety in construc-

tion, equipment, and operation of shipping—as well as rescue and education and law enforcement in the maritime field . . .

The Commandant of the Coast Guard directs the field organization through the 12 District Commanders. He is given advice and assistance in the administration of marine safety functions primarily by the Chief, Office of Merchant Marine Safety, and his staff. In addition, the Merchant Marine Council has been established as a fact-finding body and serves in an advisory capacity to the Commandant. This Council acts as a deliberative body to consider proposed merchant marine regulations and approvals of equipment, to conduct public hearings, and to provide a forum where problems concerning the public, labor, and industry may be considered.

The Headquarters organization of the Office of Merchant Marine Safety is composed of three principal divisions: The Merchant Vessel Inspection Division, the Merchant Vessel Personnel Division, and the Merchant Marine Technical Division.

The Merchant Vessel Inspection Division receives reports of all inspections of vessels and is primarily responsible for initiating instructions, changes in regulations, and other directives concerning inspections of vessels. Appeals and inquiries arising out of the inspection of vessels are also handled by this division.

It receives, reviews, and maintains permanent files of all marine casualty and accident reports and records; prepares precepts for casualty boards; and initiates the preparation of regulations for the investigation of marine casualties and accidents.

It receives and reviews all reports involving violations of inspection and navigation laws and regulations.

It receives reports on motorboat registration, handles correspondence arising in connection with the numbering of motorboats, and is responsible for preparing instructions and regulations on the subject.

It has cognizance of all matters relating to manning requirements, except those specifically under the jurisdiction of the Merchant Vessel Personnel Division.

It receives requests for individual

waivers regarding material matters submitted to Headquarters for action or review.

Finally, the Inspection Division is generally responsible for the administration of the vessel inspection system, including field office organization and procedure and the reviewing of field office complements.

The Merchant Vessel Personnel Division initiates instructions and regulations concerning the licensing and certifying of merchant marine personnel, the revocation or suspension of licenses and certificates, and the shipment and discharge of seamen.

It develops and reviews the program of investigating and taking action in cases of misconduct, negligence, or incompetence on the part of merchant marine personnel. This includes the activities of investigating units in the United States and merchant marine details abroad.

It maintains service records of all merchant seamen and keeps generally informed as to their current employment, availability, competence, and conduct.

It receives and reviews documents concerning officer's, seamen's, and motorboat operator's licenses or certificates, shipping articles, certificates of discharge, and records of entry and develops and controls the examinations for licenses and certificates.

The Merchant Marine Technical Division reviews plans and specifications for the construction or major alteration of vessels subject to inspection to determine that they may be used in navigation with safety.

It has primary responsibility for initiating instructions and regulations concerning new vessel construction.

It conducts or reviews the calculations for stability tests, prepares all stability letters, and handles all correspondence regarding these tests.

It receives all load line certificates and reports of load line inspections submitted to Headquarters by the American Bureau of Shipping and handles inquiries regarding load line regulations and correspondence regarding cases of violations.

It is responsible for the analysis and testing of equipment for better security of life at sea.

It is responsible for initiating instructions regarding standards for all factory and mill inspections of all items of marine equipment requiring Coast Guard approval. It also handles correspondence from the field and from industry regarding the application of material standards or construction standards in the manufacture of this equipment. And, finally, it conducts studies of structural failures of vessels.

In the district organization the District Commander is responsible to the Commandant for the administration and general direction of the district merchant marine safety units under his command. A Marine Inspection Officer is assigned to each district's staff organization. His duties are to direct and coordinate the district's merchant marine safety activities under the District Commander.

Each Coast Guard District is divided into geographical areas for the purpose of marine inspection and an officer with the title "Officer in Charge, Marine Inspection" is assigned to direct marine inspection functions in his assigned area. The number of inspection offices established in any one district may be from one to nine depending upon the volume of shipping in that district.

The Officer in Charge, Marine Inspection, is responsible for factory and shipyard inspections of items of marine equipment such as boilers, lifeboats, life jackets, etc., which require Coast Guard approval. His force inspects vessels to determine that they comply with the applicable laws and regulations relating to safe construction, equipment, manning and operation and that they are in a seaworthy condition for the service in which they are operated; and he is responsible for the investigation of marine casualties . . .

As time and progress march on Coast Guard maritime safety regulations necessarily undergo a continual revision as technological changes occur. It is the policy of the Coast Guard to work as closely as possible with industry and labor in the promotion of a safe merchant marine. Some of the foreseeable problems of the future are as follows:

1. Rules of the Road revisions.

We now have International Rules, Inland Rules, Western Rivers Rules, and Great Lakes Rules. Soon vessels will be able to navigate from one of these areas to the others with greater facility. It may be necessary to revise these rules.

2. Inspection of craft carrying passengers for hire under 15 gross tons. We have asked for this authority.

3. Continued positive action in the promotion of safety in the pleasure

craft field. Our major approach at present is through the CG Auxiliary.

4. We must anticipate new developments as they affect maritime safety and take the necessary action. Presently we do a limited amount of testing and developing and we have contacts with other organizations in that field.

5. We must ever bear in mind that shipping is a highly competitive business. Efforts should be continued to repeal laws and regulations as soon as conditions render them obsolete.

Possibly you might think that this regulatory program setting up minimum standards for Maritime Safety is much too costly and interferes too much with the public and private industry.

Let me enumerate just a few American maritime tragedies of the past.

The river steamer *Sultana* lost by explosion and consequent fire in the Mississippi River in 1865 with the loss of 1,450 lives. These were mostly discharged Union soldiers going home.

The coastwise steamer *Portland* lost at sea in 1899 with 157 lives. The *Portland* sailed from Boston for Portland in November with passengers going home for Thanksgiving.

The excursion steamer *General Slocum* burned at Hell Gate, N. Y., in June 1904, with the loss of 1,021 passengers.

The ocean steamer *Moro Castle* burned off Asbury Park, N. J., in 1934 with the loss of 134 people.

The uninspected party fishing motor vessel *Pelican* capsized off Montauk Point September 1, 1951, with the loss of 45 lives.

These were major disasters. There are many many more both major and minor with great losses in lives and in money.

It is interesting to note that as of March 1, 1953 there were 3,350 ships of 1,000 gross tons or over comprising a total of 25,161,000 gross tons of commercial seagoing shipping under the American flag.

Present numbered and undocumented vessels in the United States are listed as 377,271. There are thousands of other small craft in American waters not required to be numbered.

The number of American citizens employed in the shipping industry is many thousands.

The number of American citizens who use the waterways of this country for pleasure must be estimated in the millions.

The number of American citizens using vessels for transportation for business or pleasure must also be estimated in the thousands.

One hundred and fifty million citizens of this country now look to the

Coast Guard for leadership in the promotion of safety for our people on the seas or on the waterways . . . The Coast Guard now has a greater opportunity to be of service to our people. Understanding and cooperation are necessary. The Coast Guard is charged with responsibility along maritime safety lines, but the effect of its actions are felt by all groups connected with shipping.

## LIST OF LIGHTS AND OTHER MARINE AIDS ATLANTIC COAST, 1953 EDITIONS

The 1953 editions of the Lists of Lights and Other Marine Aids, Atlantic Coast, have been published in a new form whereby lighted and unlighted aids to navigation are shown together in their geographic order and data concerning each aid appears on one page. The following lists are now available:

Volume I, First Coast Guard District, from St. Croix River, Maine, to Watch Hill, R. I.; price \$1.25.

Volume II, Third Coast Guard District, from Watch Hill, R. I., to Fenwick Island, Del.; price \$1.25.

Volume III, Fifth Coast Guard District, from Fenwick Island, Del., to Little River Inlet, S. C.; price \$1.25.

Volume IV, Seventh Coast Guard District, from Little River Inlet, S. C., to Apalachicola River, Fla.; price \$1.50.

Volume V, Eighth Coast Guard District, from Apalachicola River, Fla., to the Rio Grande; price \$1.50.

Volume VI, Seventh Coast Guard District (Greater Antilles Section), covering the United States West Indies; price \$0.75.

Volumes I-VI (Combined) Complete List of Lights and Other Marine Aids, Atlantic Coast. This volume is a composite list of volumes I to VI, inclusive, with suitable cross-references to facilitate its use by navigators operating in more than one Coast Guard district; price \$4.25.

The Intracoastal Waterway Light List has been discontinued. Aids to navigation formerly listed in the Intracoastal Waterway Light List are included in volumes III, IV, and V, and the Combined List.

The above lists may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., or from sales agents located in the various seaports, a list of which is published quarterly in the Weekly Notice to Mariners, part I.

## ACCIDENTS WAITING TO HAPPEN

Lessons from Casualties have been published in the "Proceedings" in issue after issue. Ordinarily each "lesson" has dealt with a specific situation. There are, however, certain unsafe conditions which may be compiled, and, if not corrected, will in all probability lead to further unpleasant mishaps.

Here are some recurring contributing factors to—*Accidents Waiting To Happen*.

1. Unguarded V-belts and pulleys on machinery.
2. Unguarded dangerous points of operation on saws, jointers, and planers.
3. Cluttered work benches and areas surrounding machinery.
4. Improperly lighted and poorly arranged shops, stairways, and offices.
5. Poorly arranged and loosely stowed warehouses.
6. Working surfaces and areaways not maintained even.
7. Flammables not handled and stowed according to the best safe practices.
8. Stairways without handrails.
9. Safety equipment and apparel not provided.
10. Safety equipment and apparel not kept in good condition.
11. Overloaded electrical circuits.
12. Electrical equipment poorly maintained and grounds not provided.
13. Unguarded hatches and other deck openings.
14. Hatch covers left open without inserting toggle pins; faulty toggle pins.
15. Coils of line or other materials piled at the foot of ladders.
16. Open hatches at the foot of ladders.
17. Davits which are not maintained in easy operational order.
18. Ladders not secured at top and/or bottom.
19. Faulty ladders left lying around where they may be used.
20. Improvised staging or floats for working over the side.
21. Additional safety handlines not rigged during hazardous weather.
22. Loose material inadequately secured on decks.
23. Inadequately lighted gangways.
24. Gangways not rigged.
25. Gangways with handline or guardrail on one side only.
26. Ordinary planks used as gangways.
27. Danger points not indicated by safety devices or warning signs.
28. Piers without guardrails at critical points.

29. Means of boarding small boats not provided.
30. Inadequate wharf lighting.
31. Passageways or wharves not maintained clear for approaches to moored vessels.
32. Cluttered passageways along dock cap strips where men handle mooring lines.
33. Life buoys (rings) missing from critical points along piers.
34. Mouldy, greasy lifejackets unfit to be worn.

35. Newly assigned personnel not instructed on the hazards to be alert for on each assignment.

36. Men allowed to perform hazardous duty without lifejackets and other safety equipment and apparel.

37. Men working aloft without safety belts.

Accidents just don't happen. They are largely invited. Many can be prevented. One way to do it is to withdraw the so-called invitations.

## PUBLICATIONS OF THE TECHNICAL AND RESEARCH COMMITTEES OF THE SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS

The following bulletins issued by the Technical and Research Committees of the Society may be obtained from the Secretary's office, 29 West 39th St., New York 18, N. Y. They contain valuable information which undoubtedly would benefit many in the maritime industry, both members and non-members of the Society. It is not necessary to be a member of the Society of Naval Architects and Marine Engineers in order to purchase the material. Prices are as quoted.

### PREPARED BY THE HYDRODYNAMICS COMMITTEE

- Bulletin No. 1-2: Uniform Procedure for the Calculation of Frictional Resistance and the Expansion of Model Test Data to Full Size. August 1948.—Reprinted March 1952..... \$1
- Bulletin No. 1-5: Nomenclature for Treating the Motion of a Submerged Body Through a Fluid. April 1950..... \$1
- Bulletin No. 1-8: On the Wave-Making Resistance and Lift of Bodies Submerged in Water, by N. E. Kotchin..... \$1
- Bulletin No. 1-9: Two Two-Dimensional Problems of the Steady Oscillations of Bodies under the Free Surface of a Heavy Incompressible Liquid, by N. E. Kotchin..... \$1
- Bulletin No. 1-10: The Theory of Waves Generated by Oscillations of a Body Under the Free Surface of a Heavy Incompressible Fluid, by N. E. Kotchin..... \$1
- Bulletin No. 1-11: Directory of Hydrodynamics Research Projects in the United States Related to Naval Architecture and Marine Engineering. December 1952..... \$1
- Bulletin No. 1-12: Two Papers on the Hydrodynamic Theory of Heaving and Pitching of a Ship, by M. D. Haskind..... \$1

### PREPARED BY THE HULL STRUCTURE COMMITTEE

- Bulletin No. 2-2: A Design Manual on the Buckling Strength of Metal Structures, by Dr. Friedrich Bleich and Commander Lyle B. Ramsey, USN..... \$1

### PREPARED BY THE SHIPS' MACHINERY COMMITTEE

- Standardization Trials Code. October 1949..... \$1
- Economy and Endurance Trials Code. July 1950. Revised December, 1952 to include Diesel propulsion..... \$1
- Code on Maneuvering and Special Trials and Tests. July 1950..... \$1
- Code on Instruments and Apparatus for Ship Trials. October 1952..... \$1
- Bulletin No. 3-2: Current Ships' Machinery Research Projects in the United States. December 1952..... \$1
- Model Resistance and Expanded Resistance Data Sheets prepared by the Hydrodynamics Committee for a total of 150 models may be ordered from the Secretary's office. Revised Explanatory Notes are available with any order on request. An index listing all the models is available at the Secretary's office, free of charge, upon request.

	To Members	To Nonmembers
Models 1-50.....	\$10	\$11
Models 51-100.....	\$10	\$11
Models 101-150.....	\$10	\$11

Individual sheets may be obtained at \$1 per sheet.

# TANKERMEN, BE ALERT—DOUBLE CHECK THESE PRECAUTIONS

Pollution of the navigable waters of the United States is a violation of the United States Statutes (43 Stat. 605; 33 U. S. C. 433, 435), which is highly detrimental to our harbors and shores. To abate the practice a warning and educational poster has been prepared by the United States Coast Guard upon the recommendation of the American Petroleum and American Merchant Marine Institutes. It is hoped that this poster will be kept posted on every tanker in the pump-room as a constant reminder against practices which lead to oil pollution. (This is not to say, however, that mariners in general need not be concerned with oil pollution . . . and its prevention.) Those tank vessels not having a copy of this poster, CG 3372, may obtain a copy upon request from the nearest Coast Guard District Commander.

## BEFORE STARTING TO LOAD OR DISCHARGE CARGO

A. Senior deck officer on duty consult with terminal cargo superintendent to plan details of operations.

B. Terminal and ship each arrange to give the other where possible, 10 minutes "standby" before starting, stopping, or changing the rate of cargo flow.

C. Senior deck officer on duty make inspection to assure himself that the following conditions exist (Tanker Regulations, sec. 35.35-20):

- (a) Warnings are displayed as required.
- (b) No repair work in way of cargo spaces is being carried out without his permission.
- (c) Cargo hose is properly connected and valves set.
- (d) All cargo connections for the loading of grade A, B, and C cargoes have been made to vessel's pipe lines and not through open end hose in a hatch.
- (e) In loading grade A, B, and C cargoes, there are no fires or open flames present on the deck, or in a compartment which is located on, facing, open and adjacent to that part of the deck, on which the cargo hose is connected.
- (f) The shore terminal or other tank vessel concerned has reported itself in readiness to start loading or discharging.
- (g) All sea valves connected to the cargo piping system are closed.
- (h) In loading grades A, B, and C cargoes, that an inspection has been made to determine whether boiler fires can be maintained with reasonable safety.
- (i) In loading grades A, B, and C cargoes, that an inspection has been made to determine whether galley fires can be maintained with reasonable safety.
- (j) In loading grades A, B, and C cargoes, that an inspection has been made to determine whether smoking may be permitted with reasonable safety. If smoking is permitted, that spaces have been designated for that purpose.
- (k) On tank ships the construction or conversion of which is started on or after July 1, 1951, which are to load or discharge grade A cargo, all openings in the top of the tanks, except the branch vent lines and covers to ullage hole sounding pipes, are tightly closed.
- (l) On tank ships the construction or conversion of which is started on or after July 1, 1951, which are to load or discharge grade A cargo, the method for determining the liquid level in the tank without opening ullage holes, cargo hatches, or Butterworth plates is in proper order.

## WHEN HANDLING BALLAST

A. Become familiar with the wording of the Oil Pollution Act 1924 (33 U. S. C. 433-5).

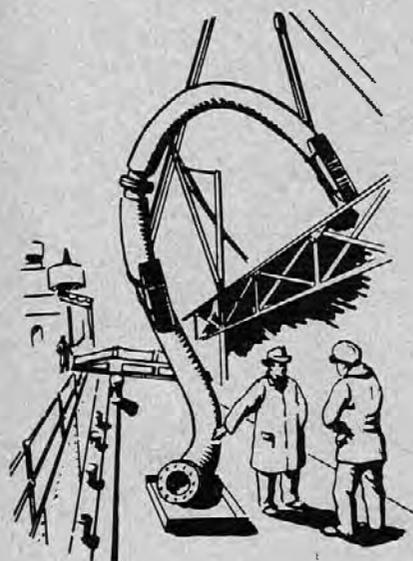
B. Subject to the provisions of the above:

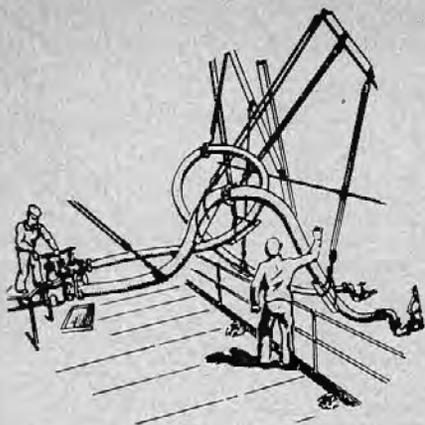
- (a) Discharge as much ballast water as possible at sea, preferably 50 miles or more offshore which distance may be modified under favorable conditions of current and tide without danger of polluting coastal waters.
- (b) If ballast brought into port must be discharged INTO THE HARBOR, wash down AT SEA the tanks and pipelines used for this ballast whenever possible and NOTE THIS FACT IN LOG.
- (c) When ballast is discharged into harbors it should be discharged "OVER THE TOP" where it may be constantly inspected, and not through pump room sea connections.
- (d) WHEN TAKING ON BALLAST IN HARBORS START CARGO PUMPS BEFORE OPENING PUMP ROOM SEA VALVES.



## WHEN LOADING CARGO

- A. See that all scuppers on the main deck are plugged.
- B. SECURELY CLOSE AND LASH ALL PUMP ROOM SEA VALVES AND STERN DISCHARGE VALVES (if any).
- C. Agree in advance with the Terminal Cargo Superintendent with the MAXIMUM LOADING RATE to be.
- D. Start loading at reduced loading rate.
- E. Inspect cargo hose, setting valves (especially STERN DISCHARGE VALVES if any), flow of oil into proper tanks and harbor surface.





near pump room sea valves, **BEFORE INCREASING LOADING RATE.**

F. Increase loading rate gradually to agreed maximum.

G. Make same inspection to assure satisfactory condition at maximum loading rate.

H. Make frequent inspection of harbor surface near pump room sea valves and in way of cargo tanks, between ship and dock and under stern.

#### I. WHILE LOADING:

(a) Do not permit other jobs or persons to unnecessarily divert attention away from the loading operation.

(b) Be certain that the most experienced man supervises the most important part of the loading operation, namely **REGULATION OF THE FLOW OF OIL.**

J. During the loading of grade A cargo on tank ships, construction or conversion of which is started on or after July 1, 1951, keep all openings in tank tops except branch vent lines and covers to ullage hole sounding pipes tightly closed except for such brief periods of time as may be necessary for sampling, taking temperatures of tank contents, checking the accuracy of gaging devices, or sighting level of liquid surface. Such tank ships must be fitted with a vent header system of sufficient capacity as to be able to carry off all displaced air and vapors during the loading of cargo tanks without opening ullage plates, cargo hatches, etc. (Tanker Regulations, Sec. 32.55-20 (b) (4).)

#### WHEN "TOPPING OFF" CARGO

A. Reduce the loading rate if necessary.

B. Remember that the closing off of one tank increases the rate of flow into other open tanks.

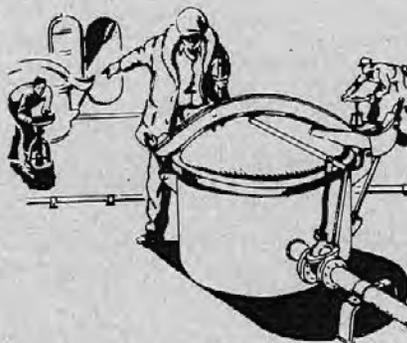
C. Remember that as the ship "goes by the stern" the rate of flow increases into after tanks which are open.

D. Remember that when ship is "by the stern" or, when ship has considerable "sheer," forward loaded tanks put a head on after partly loaded tanks.

E. When closing valves, seat the valve hard, then open it a turn or two to wash away any scale which may be under the gate, then close the valve hard again.

F. Remember that the rate of flow into any tank which is nearly full can be quickly reduced by opening forward and after tanks held until last for trimming, or, opening a midship tank which may be held until last for this purpose.

G. Remember that the most experienced man should be regulating the loading rate and that he should not go on the dock to read the draft or permit his attention to be diverted from loading for other reasons. Send another man to read the draft. Postpone if possible other less important duties.



H. After tank valves have been closed check frequently the liquid level in the tank to be sure it is not rising due to a leaking valve, etc.

I. When shutting down the loading of the ship, try to give the dock man a 10 minute "standby."

#### WHEN DISCHARGING CARGO

A. Be certain that pump room sea valves **AND ESPECIALLY STERN DISCHARGE VALVES** (if fitted and not in use) are securely closed and lashed. Inspect stern discharge valves (if any) when discharging starts and after full working pressure has been reached.

B. Start cargo pumps slowly.

C. Observe cargo hose frequently to be certain it is properly supported and that it does not get between ship and dock.

D. Increase pump speed (or discharge rate) to build up working pressure slowly.

E. During the discharging operation observe, from time to time, the cargo system operating pressure and the cargo hose and its connections for possible leakage.

F. Observe conditions in the pump-room at frequent intervals.

G. Be prepared to **STOP DISCHARGING** on short notice from the dock.

H. Keep drip pans under hose connections and when discharging is completed and hose is disconnected take the necessary precautions to see that hose (if part of ship's equipment) does not drain into harbor.

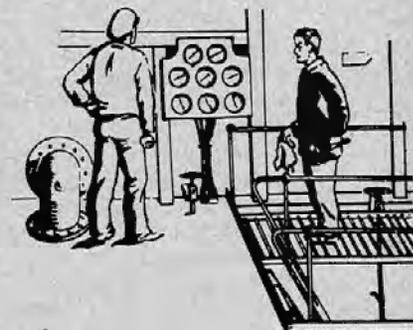
I. During the discharging of grade A cargo from tank ships, the construction or conversion of which is started on or after July 1, 1951, keep all openings in tank tops except branch vent lines and covers to ullage hole sounding pipes tightly closed, except for such brief periods of time as may be necessary for sampling, taking temperatures of tank contents, checking the accuracy of gaging devices, or sighting level of liquid surface. Such tank ships are fitted with a vent header system of sufficient capacity as to be able to admit a sufficient supply of air to replace the cargo being pumped out.

#### GENERAL PRECAUTIONS

A. When joining the ship inquire of other officers with regard to loading and discharging procedure, even though you may have served on similar ships before. Each ship has its peculiarities, each crew its own procedure and methods.

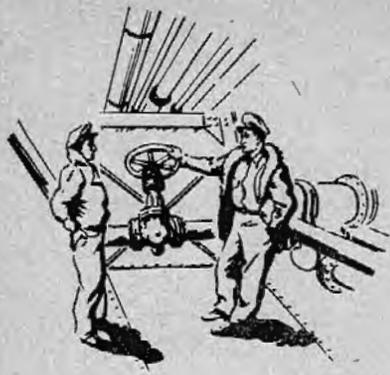
B. Keep ship's lines hove taut. Pay special attention to spring lines in narrow channels.

C. At terminals on narrow channels be prepared to "blow down" by whistle signal, vessels passing with excessive speed. Where surging may take place, be prepared to reduce or stop loading or discharging on short notice.



# PROPER LOOKOUT A MUST

By Commander C. W. Quinby, USCG.



D. If a cargo spill takes place NOTIFY THE CAPTAIN OF THE PORT IMMEDIATELY IF CARGO GETS INTO HARBOR. In the case of a spill STOP LOADING, BAIL SPILL INTO CARGO TANK OR COFFERDAM, dry up remaining oil with sawdust. TAKE ALL NECESSARY PRECAUTIONS TO ELIMINATE POSSIBLE SOURCES OF VAPOR IGNITION.

E. In the case of equipment failure, SHUT DOWN IF NECESSARY. Consult all who may be interested and develop a plan of procedure. Put the plan into effect CAREFULLY and DELIBERATELY.

F. In the case of a severe electrical storm or when a fire occurs in the vicinity SHUT DOWN until conditions are again safe.

G. IF FOR ANY REASON OPERATIONS GET OUT OF HAND OR DOUBT EXISTS AS TO AN ESSENTIAL PART OF THE CARGO OR BALLAST TRANSFER PROCEDURE—TAKE NO CHANCES—SHUT DOWN—CHECK UP—START UP.

## Observations of the Old Mariner

\* \* \* \* \*

Someone left a hatch open at the base of a ladder. A shipmate descending later, not knowing of it, fell to the deck below.

\* \* \* \* \*

Then there was the member of the engine department who attempted to siphon sulfuric acid out of a carboy with an improvised siphon while not wearing goggles and rubber gloves. Acid burns are serious. He was off 25 days.

It is a shattering experience to be aboard an outboard-driven motorboat when it crashes into a channel marker, killing or injuring some of the occupants. One of the lesser publicized evils of such a casualty is that it may result in imprisonment for the operator of the boat. Criminal liability may seem a trifle compared to the more obvious horrors of such a tragedy, but since an appreciable part of the boating public ignores, or is unaware of, their statutory duty to maintain a proper lookout, it might be useful to clarify the legal status of a negligent operator whose negligence has caused a death or an injury.

Two casualties which recently occurred in Florida emphasize the necessity for an adequate lookout. These accidents had several common factors. Both happened during the forenoon of a day when the visibility was unlimited and there was not much wind or sea. No mechanical breakdown affected either vessel. There was ample room to maneuver. Both accidents were unquestionably caused by the failure of the operators to watch where they were going, or, in the phrase used in the statute, to maintain a proper lookout.

One casualty took place on a pleasant salt water bay in Florida. Two men were fishing, trolling, in an outboard-powered rowboat. As they settled down to the serious business of fishing, they saw a cruiser about a half-mile away. The bows of both vessels were headed in the same general direction, but there seemed to be plenty of space ahead and, since from a quick glance, the cruiser looked stationary, these fishermen watched their baits astern and not the water into which they were headed. Some few hundred yards ahead and a few minutes later, they forgot their fishing as the 46-foot cruiser was discovered close aboard, making 13 knots and in the jaws of an inevitable collision. Collision it was. The fishermen were pulled out of the bay a few minutes later by personnel aboard the cruiser. They were shocked, shaken, soaked, and separated from a lot of expensive sports equipment but, by great good fortune, uninjured. In short, the men in the rowboat hadn't bothered to look, and the lookout on the cruiser had his view partially blocked by the bow of his own vessel.

The other casualty resulted when three young men boarded an outboard for a run on a wide and deep Florida river. They were riding a light, 16-foot, flat-bottomed boat,

which was powered by a 25-horsepower outboard motor—a very fast, and a very dangerous, combination. These boys wanted speed, and on this quiet sunny day, the danger must have seemed remote. The operator of the vessel was tinkering with the motor as the boat lifted her bow and started to plane at close to her maximum 30 knots. The other boys watched the operator adjust the gas mixture as the boat planed directly into a channel marker. One boy was killed, another hospitalized with a serious back injury, and the third suffered a mental shock which may prove more serious than ripped back muscles.

The phraseology of the law which requires a vessel to maintain a lookout does not appear peremptory. For inland waters generally, it is section 221, title 33, United States Code (art. 29, Inland Rules). Sections 121, 293, and 351 of Title 33 are identical and apply, respectively, to International Waters, to the Great Lakes, and to the Western Rivers. Section 221 reads:

221. USUAL ADDITIONAL PRECAUTIONS REQUIRED GENERALLY. ART. 29.

Nothing in these rules shall exonerate any vessel, or the owner or master or crew thereof, from the consequences of any neglect to carry lights or signals, or to any neglect to carry a proper lookout, or of the neglect of any precaution which may be required by the ordinary practices of seamen, or by the special circumstances of the case. [Italics inserted.]

If the law as written seems equivocal, the Federal courts have been positive. They have decided: "The strict performance of a vessel's duty to maintain a proper lookout is required, and failure to do so, especially when other vessels are known to be in the vicinity, is culpable negligence."<sup>1</sup> "The rule requiring a lookout admits of no exceptions, on account of size, in favor of any craft capable of committing injury."<sup>2</sup> "There being no legal distinction in respect to the rules of navigation between pleasure vessels and those operated for profit, large and small boats, or those numerous manned or those operated by one man only."<sup>3</sup>

<sup>1</sup> The *Kaga Maru* (Washington, 1927) 18 F. (21) 295.

<sup>2</sup> *Hodson v. The Harry Lynn* (D. C. Wash., 1893), 56 F. 271.

<sup>3</sup> *The O'Brien Brothers* (C. C. A. N. Y. 1919), 258 F. 614, modifying (D. C., 1919) 253 F. 855.

The decisions cited above reflect the views of the Federal courts as to the necessity of a vessel having a proper lookout. The judges have held a vessel and her operators liable, or partly liable, not only in those cases where failure to maintain a lookout *did* contribute to a casualty, but also in those cases where such failure *may* have contributed to a casualty.

The courts have amply defined what constitutes a "proper" lookout. To prove a proper lookout, a vessel must establish that her lookout was a competent and experienced seaman, that he had no other duties which might have interfered with the proper discharge of his duties as a lookout, and that he was assigned a station on the vessel from which he could best observe any approaching vessel or object. Most judges have been more willing to consider the special circumstances of any case when deciding whether a lookout is proper than they have when considering whether a lookout is required. There is no discoverable decision of any court which does not inflexibly require a lookout, but there are a number in which the court modified and interpreted the general requirements of competence, exclusive assignment, and best practical location. To illustrate, a lookout may be legally withdrawn from the forecabin head when freezing spray is coming aboard; lookouts are not constantly required to sweep the horizon with night glasses during the hours of darkness.<sup>4</sup>

When the Congress passed the Motorboat Act of 1940, it established criminal liability for the negligent or reckless operation of a motorboat. Section 526 (L) of the United States Code states, "No person shall operate any motorboat or any vessel in a reckless or negligent manner so as to endanger the life, limb, or property of any other person." The succeeding section, 526 (M), provides for a fine of \$2,000, or 1 year's imprisonment, or both, for convicted violators of the statute.

A United States circuit court recently upheld a conviction and sentence of imprisonment which was imposed by a lower court. This court said, "Defendant in his motion for judgment of acquittal, or for a new trial, contends that the Government,

in order to convict, was required to prove 'reckless rather than mere negligent operation.' We do not agree with the contention. The act specifically provides that any person who operates any motorboat in a reckless or negligent manner so as to endanger the life, limb, or property of any other person shall be guilty of a misdemeanor, and provides for the conviction of a defendant who operates a motorboat in a negligent manner, although his conduct may not have been reckless."<sup>5</sup>

The statutes noted above, and the decisions which interpret them, demonstrate a clear and unequivocal duty which must be performed by the operator of any motor vessel. A proper lookout must be maintained, and the information gained by the lookout must be used in an effective manner by the operator so that no person or his property is endangered by the operation of the vessel.

The casualties described above illustrate the two common causes of failure to maintain a proper lookout, sheer failures to watch where the vessel is headed, and attempting to con the vessel from a spot from which there is not a clear and unobstructed view. To maintain a lookout on a pleasure cruise should, almost by definition, be a pleasure, as well as a duty. If a man is willing to spend the never inconsiderable time, trouble, and money which is required to operate a pleasure boat, it would seem that he would take the dividend which is afforded by his using his eyes to enjoy himself as well as to protect himself and others.

The cure for the second cause of poor lookout is more difficult, and sometimes more expensive. Safety is a prime consideration in the design of most stock boats, but even these boats do not always provide a steering station with adequate vision. The steering station is sometimes located so far aft, or so low, or both, that the lookout's view of the water immediately before the vessel is blocked by the bow or superstructure. This condition may be aggravated in those boats which are designed to plane a maximum speed, and which are overloaded in operation. Such boats will squat in the water and raise their bows a few degrees higher than the angle contemplated by the design. The result is a critical blocking of the operator's view of the water immediately ahead.

In rough water, when running toward the sun, and in certain other instances, objects such as a swimmer or a small rowboat can only be de-

tected with difficulty until they are within yards of the lookout. They are often struck before they are discovered. This happened in the incident involving the cruiser which has been previously described. A competent and sober operator was devoting his full attention to operating the vessel, yet neither he, nor any other person aboard the cruiser saw the rowboat until after the shock of collision, when the overturned rowboat was discovered on the vessel's quarter. The operator at first believed that he had run aground when he felt the vessel strike.

The reasons for locating the steering and conning stations so far aft on this class of vessels seem to be economy, comfort, accessibility, and appearance. A study of the decisions quoted above and other relevant decisions inevitably leads to the conclusion that no court would find merit in the contention by a defendant that these were reasonable and proper reasons for operating any vessel through waters which had not been carefully scanned by her lookout.

Any person who has had the unpleasant duty of interviewing the shocked and remorseful survivors of a boating casualty, in which a careless or nonexistent lookout has resulted in death or serious injury, needs no threat of criminal liability to convince him that an adequate lookout is a must on any vessel. This, however, is an experience which most members of the boating public are fortunate enough not to undergo. To those who are not convinced of the necessity for maintaining a "proper lookout," it must be pointed out that while our courts have always tempered justice with mercy, their statutory duty to protect the public sometimes precludes their sparing even a shocked and remorseful violator the further anguish and humiliation of a criminal indictment.



Courtesy Maritime Reporter

<sup>4</sup> *The Kaiserin Maria Theresa* (N. Y., 1906) 149 F. 97, 78 C. C. A. 681, reversing (D. C., 1903) 125 F. 145, and certiorari denied (1907) 27 S. Ct. 786, 204 U. S. 671, 51 L. Ed. 673

<sup>5</sup> *The Leversons* (D. C. Md., 1882) 10 F. 753

<sup>6</sup> *The United States v. McHugh*, 103 F. Supp. 740

# Your Fact Forum

Q. What is the proper way to take care of binoculars?

A. They should be kept in their case and stowed in a safe place except when in use. When in use they should be worn suspended by straps from the neck in such a manner that the glasses are resting upon the chest of the wearer. At no time should they be placed on surfaces from which they might drop to the deck.

Q. What precautions should be taken in mooring a vessel alongside a wharf?

A. Sufficient fenders should be put over the side to prevent chafing. Sufficient bow, stern, and spring lines should be put out to secure the vessel safely. Rat guards should be placed on all mooring lines.

Q. Who is in command of a vessel when a pilot is on board?

A. The master is in command of the vessel at all times, and he is responsible for the safe navigation of the vessel, the presence of a pilot notwithstanding.

Q. Of what function and purpose is a lookout?

A. A lookout is in effect the eyes and ears of the ship. He must be stationed where he is in the best position to see and hear. Under conditions of low visibility he must be as low and forward as is practicable. He must not at any time be required to do any other work while assigned these duties.

Q. Where is a Jacob's ladder most liable to chafe and wear?

A. At the points where the ladder is hung over the side.

Q. Define "fishing" a boom. When and how is it done?

A. When a boom is damaged or when a long slight boom is to be used to take on board a heavy weight, the boom is "fished" to guard against excessive stress. One or more timbers are placed around the boom and securely seized with wire. The wire seizing is hove taut with a heaver and wedges are driven to take up any remaining slack.

Q. What do the numbers on a chart represent?

A. The numbers on the white surfaces tell depths in fathoms. In shaded areas they tell depths in feet. When printed on the portion representing the land, they indicate heights in feet above sea level.

Q. How is cargo stowed to maintain the vessel's stability?

A. Heavy cargoes are stowed two-thirds by weight in the lower holds, one-third in the 'tween-deck.

Q. What are the legal steering orders?

A. Right rudder and left rudder.

Q. Where are storm warnings displayed?

A. From Coast Guard stations, customs houses or other public buildings, yacht clubs, weather stations, tall buildings around the harbor, etc.

Q. How can shackle pins be prevented from working loose?

A. By cotter pins or wire seizing.

Q. What determines the visibility of lights?

A. The theoretical visibility of a light in clear weather depends upon two factors, the height of the light above water, and its intensity or brilliance. The height controls what is known as the geographic range, while the intensity controls what is known as the luminous range.

Q. What is the purpose of a lightship?

A. Lightships serve the same purpose as lighthouses, being equipped with lights, fog signals, and radio-beacons. They take the form of ships only because they are placed at points where it would be impracticable to build lighthouses. Lightships mark the entrances to important harbors or estuaries, dangerous shoals lying in much frequented waters, and also serve as leading marks for both transoceanic and coastwise traffic.

Q. Should it be taken for granted that buoys are always where they should be, or where the chart shows they are located?

A. No. Unusual weather and tidal conditions may have dislodged their sinker, putting them out of position.

Q. What colors are used on an obstruction buoy?

A. Red and black horizontal stripes, the top stripe indicating the side to pass on.

Q. What colors are used on a mid-channel buoy?

A. Black and white vertical stripes. It may be passed on either side.

Q. How can you test the soundness of a wooden boom?

A. By scraping the paint off the boom in several places and then sticking a knife into the boom.

## STORAGE BATTERIES

Explosions often occur in battery repair rooms or compartments during charging operations. These explosions result from ignition of the gases released from the battery or batteries under charge.

For the lead-acid type of battery, gassing (hydrogen and oxygen) begins when the voltage at the terminals of the battery, when on charge, has reached about 2.3 volts per cell. For the nickel-iron (Edison) type of battery, gassing (oxygen, primarily) occurs toward the end of the charge.

On discharge the cells of a lead-acid type of battery will not gas, but frequently a slight liberation of hydrogen occurs from the negative plate when the cells are idle. In the case of a nickel-iron (Edison) type of battery on discharge, little gas escapes from the cells if they are put on discharge soon after the termination of the charge, as compared with the amount of gas which escapes if the cells stand idle. But should discharging of these cells occur at or above a temperature of 50° C. (122° F.), hydrogen is liberated.

As a matter of pertinent information in connection with the gassing of storage battery cells, 4 percent hydrogen, a relatively small amount, in the atmosphere is dangerous and will explode violently.

Static sparks, power arcing, cigarettes, matches, and other similar factors, are among the more common causes of explosions in battery compartments. These explosions can be avoided by observing some simple (and obvious) safety rules in these compartments:

1. Assume that hydrogen and oxygen gases are always present.
2. Install charging equipment in other locations.
3. Disconnect all charging or discharging connections external to the compartment before removing battery connections.
4. Avoid accidental short-circuiting of cells that is always possible when using tools or when carelessly handling cable connections.
5. Employ adequate ventilation.
6. Avoid smoking.
7. Place cable connections, other than at the battery terminals, in suitable enclosures.

Inspection for protection—  
In good condition means  
Good protection

# LESSONS FROM CASUALTIES

## DEATH BY STRANDING

A man died recently in an Eastern Seaport when a wire cargo whip which several persons knew to be defective, but which was continued in use, parted.

The stevedore gang on a Victory ship unloading a cargo of lumber made up in drafts of 3 to 4½ tons per lift noticed a broken strand in the bight of an eye splice in the port cargo runner, No. 5 hold. They notified the Chief Mate who inspected the wire and indicated it would be replaced. The stevedores, assuming this would be done during noon hour, finished their morning's work using a taut bowline in the wire, rigged so that both the bight of the bowline and the original eye splice were shackled to the cargo hook.

After lunch the stevedores noticed the defective runner had not been replaced, but nevertheless resumed unloading. After about 3 hours' use, the port runner suddenly carried away while a draft was being lifted. As the draft dropped, the starboard runner came taut against the upper hatch coaming causing it to swing aft and to starboard and strike the victim. Although the injured man was rushed to a hospital by a police ambulance, he died shortly afterward.

Examination of the wire which had parted disclosed that the failure had occurred within the bowline knot itself, probably due to the broken strand and the unnatural strain placed on the wire due to the distortions within the knot. It was also noted that there was no thimble where the eye splice had been bent to the cargo hook shackle and that this had probably caused the initial fraying or stranding. The manufacturers of the wire which had parted advised that the effect of tying any kind of a knot or introducing any similar kinking in wire rope made by them was to reduce its ultimate tensile strength and lower considerably its safe working load.

While the above principles of good seamanship in rigging cargo gear should be well known and understood by all seamen, especially by the Chief Mate of an oceangoing freighter, nevertheless two basic errors were committed in this case: failure to renew questionable wire before continuing cargo operations; and, failure to use a thimble in a close bend of wire through a shackle. They resulted in tragic and sudden death.

The maintenance of a vessel's cargo-handling gear in safe condition is a primary responsibility of her licensed officers. Since the failure to replace the defective wire rope in this case, especially after he had been specifically informed of its condition, is directly attributable to the Chief Mate, a charge of negligence was brought against his license.

## CARELESS LAXITY IS COSTLY

A 193-gross-ton, uninspected, diesel, commercial, fishing vessel with a crew of 12, including the master, departed a southern California port to fish for tuna off the coast of Lower California. She was built of wood, and her equipment and machinery was said to have been in good condition and in compliance with the rules and regulations for vessels of her class. The fire extinguishing equipment consisted of one 250-pound fixed CO<sub>2</sub> system in the machinery space, three portable 15-pound CO<sub>2</sub> extinguishers located in various parts of the engine room, and one 1-quart carbon tetrachloride extinguisher in the galley. In addition, two fifty-foot lengths of 1¼-inch rubber hose were located at hydrants on the main and boat decks. The fire pump had a remote control starting switch on deck.

There were sundry deck and galley stores, consisting of cartons of canned goods, cereals, toilet paper, and rags, stowed on the shelves and the deck in the upper forepeak flat. Also stowed in the same compartment were two or three 5-gallon cans of cleaning solvent and a number of cans of paint, some of which had been opened and used.

Only partial wing bulkheads with a large, doorless opening amidships separated the forepeak flat from the upper engine room. A quick-acting escape hatch was located on the foredeck. The electric windlass resistor was located in the afterstarboard corner of the flat and was protected by a metal box-type guard to prevent contact with gear and stores.

At about 1630, the fishing vessel anchored for the night in 45 fathoms of water at a distance of approximately 42 miles from land. The weather was clear, with a moderate northwest wind and sea. The deep sea anchor, which was attached to a wire on the windlass drum, was let out on the brake without engaging the windlass or using the motor.

Crew members were detailed to stand anchor watches. The auxiliary machinery for lights and pumps was put in operation.

At or about 2115, one of the men on watch discovered a considerable volume of smoke emitting from the forepeak flat into the upper engine room, and he immediately called all hands. Then, he and the engineer obtained the three portable CO<sub>2</sub> fire extinguishers and, because of the dense smoke, took turns in discharging them on the starboard side of the forepeak flat where the seat of the fire appeared to be. The other crew members busied themselves with covering up ventilators and louver openings in the stack. The navigator raised the forepeak escape hatch cover on the foredeck, but immediately closed it, when he saw the flames in the compartment.

During this time no fire hose was put to use, either through the escape hatch or through the engine room bulkhead opening, nor were any instructions given to do so.

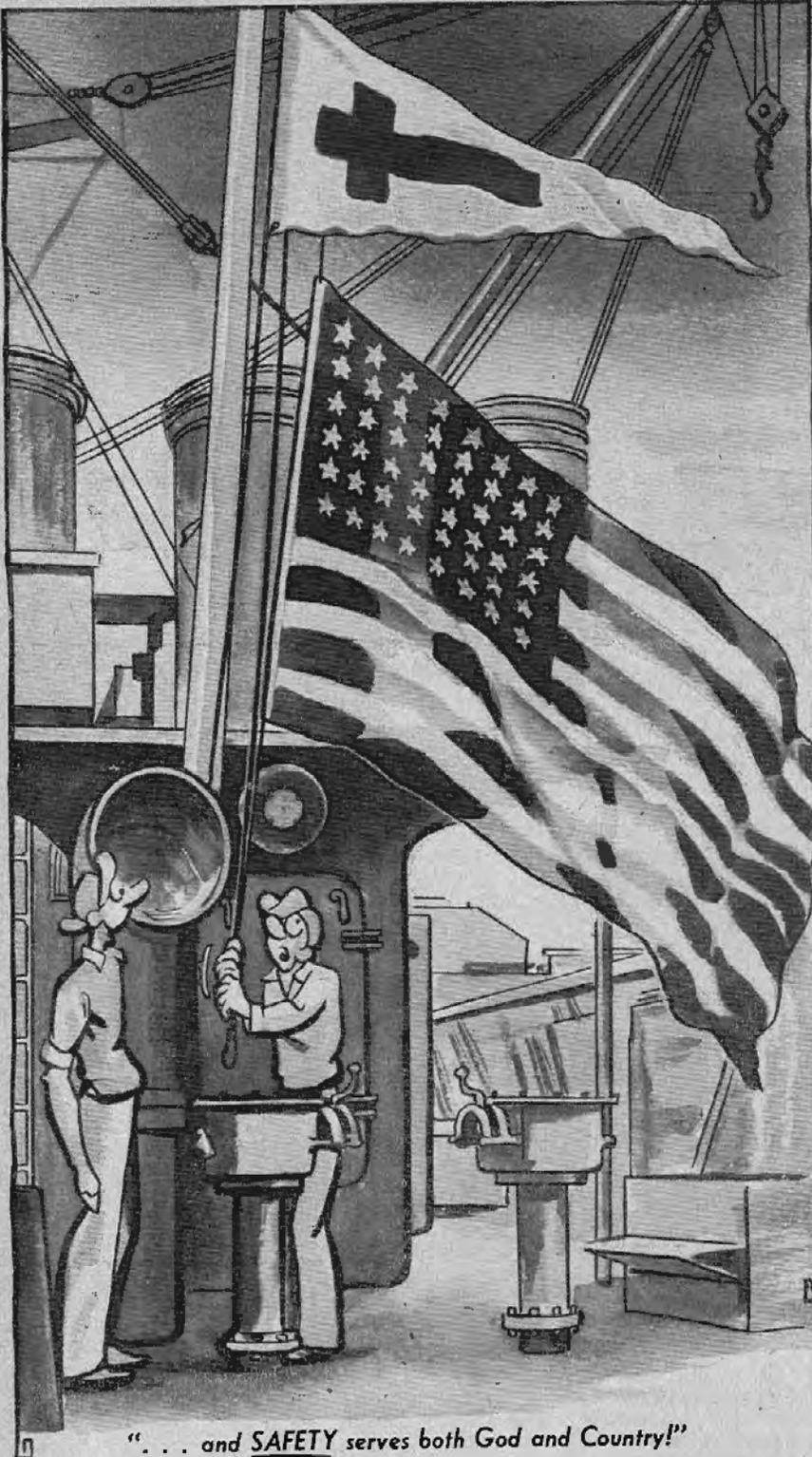
About 15 minutes later, when it was apparent that the portable extinguishers had failed to put out the fire, the engineer released the fixed CO<sub>2</sub> system in the engine room. This action caused the auxiliary machinery to stop and apparently only served to control the fire for the time being, as it flared up again and produced dense smoke some 20 minutes later.

The crew launched the power skiff and abandoned the fishing vessel at 2205. A distress call had been sent out prior to the power failure, so the crew was picked up immediately by another fishing vessel which was in the vicinity.

The latter, which was equipped with a searchlight, stood by the burning fishing vessel for 4 hours at a distance of 4 or 5 hundred yards. No discussion, proposal, or effort was made concerning the feasibility of approaching the burning vessel at a reasonably safe distance in order to attempt to put out the fire by playing water on her, as commonly practiced by ordinary good seamanship.

Subsequently the master of the burning vessel stated that he felt sick and nauseated after boarding the rescue vessel, and, therefore, went to lie down on a settee in the captain's cabin. He also appeared to be totally unaware of what stores his vessel had carried and how they had been stowed in the forepeak flat. It was his practice to leave such matters to his crew.

## MOPE and DOPE



“... and **SAFETY** serves both God and Country!”

None of the other witnesses could describe the subsequent burning of the vessel, except for seeing dense smoke in the distance.

Approximately 0200 in the morning the rescuing fishing vessel proceeded to port, where the crew of the destroyed fishing vessel was transferred to a Coast Guard plane and returned to the point of departure.

In the meantime a message had been received from another fishing vessel which indicated that the burning vessel had gone down.

During the course of the investigation of this casualty, information was received that the windlass resistor installation had been poorly arranged. A vessel with a similar resistor installation and of similar design, with the exception that a door was fitted in the bulkhead between the forepeak flat and upper engine-room, was boarded by a group of naval architects. A fire of similar origin and in the same location had occurred on this vessel a few days previously. But, because of the bulkhead door, the crew had been able to confine the fire to the forepeak flat and put it out.

The bulkhead in the back of the resistor was badly charred. Examination of the installation revealed that there was only a 1-inch space between the resistor coils and the painted wooden bulkhead. There was no asbestos or metal insulation for protection. The front of the resistor, on the other hand, had a solid metal cover, but the coils were only 1½ inches away from the inside of the cover. It was readily apparent that if the windlass control switch on top were to be off center with the main switch in the engine room, sufficient current would go through to the heating coils to make them red hot, if the main switch was left on. The heat dissipating through the back and sides of the resistor box could, in turn, cause a fire to any combustible material in the vicinity.

The apparent cause of the fire and subsequent loss of the first fishing vessel can be partly attributed to the unsatisfactory installation of the windlass resistor. However, this dangerous condition was aggravated by the lack of supervision in stowing stores for the voyage. The lack of organization and the failure to make use of all the fire-fighting equipment to fight the fire in its early stages in turn caused it to get out of control. The subsequent failure to use water in fighting the fire from the standby vessel was another factor in its total loss.

## GROUNDS FOR LIFE

The ease with which a harmless looking portable electric tool can deal sudden death was reemphasized this spring when a wiper aboard a steamer in a Gulf port was electrocuted so innocently and quickly that he probably never knew what had happened.

The guilty instrument of death was nothing more than an every day household portable electric grinder designed for use with 110 volt alternating current. What happened was this. The victim's ship was in dry-dock for rudder stock repairs. A yard workman carried the grinder aboard to use in grinding the hub of the quadrant to fit the new stock and laid it across the top of the quadrant while he turned away to plug the cord into a shore power receptacle. Just at this moment the wiper, who was damp from perspiration and a recent rain squall on deck, picked up the grinder, apparently to move it so he could wipe off the top of the quadrant. The yard workman upon turning saw the wiper with a painfully distorted facial expression and immediately pulled the plug and called for help. The wiper was then carried out on deck where artificial respiration was attempted. An ambulance was called for immediately, but the wiper, a healthy young man of 24, died en route to the hospital.

The subsequent examination of the grinder disclosed no apparent defect or ground within the instrument. There was no ground wire or connection therefor fitted to it.) A local armature works and electrical testing company examined the grinder, disassembled the handle, checked the wiring, and advised that in their opinion "the grinder in its present condition could not have shocked anyone handling it." Nevertheless, the wiper was electrocuted handling it.

Suppose we digress a moment.

One of the common misconceptions about electrical shock concerns the relative dangers of high voltage and low voltage. While most of us maintain a healthy respect for higher voltage electrical circuits, many of us are prone to consider low voltage, such as household lighting circuits, with disdain. It is true that the higher the voltage, the greater the danger of lethal shock, but the factor principally determining damage to the body is current, or amperage. Current, for any given voltage, is determined by the electrical resistance of the body, and it is this resistance which varies so greatly for different parts of the body or under different conditions of

moisture. For instance, the resistance of dry, calloused skin, such as on the hands, may be as high as 1,000,000 ohms, while the resistance of skin which is wet with salt water or perspiration may fall as low as 300 ohms. If a man, such as the unfortunate wiper mentioned above, were to be standing on a damp steel deck or with some part of his damp body well grounded against a stanchion or bulkhead, and were to reach down and pick up approximately 100 volts a. c. in the form of a harmless looking grinder, his body would receive a current of 100 volts/300 ohms or 333 milliamperes. Generally 100 milliamperes causes sufficient damage to vital organs that the victim cannot be revived. On the other hand, if another man, standing on dry or nonconductive flooring were to pick up the 100 volts with a dry hand, his body would receive a current of 100 volts/1,000,000 ohms or 0.01 milliamperes, or just a tickle. Unfortunately for maritime occupations, the damp or wet conditions are much more apt to prevail than the dry. Therefore, the danger that low voltages may cause electrocution is very high. In fact, as can be seen from the above calculations, electrical potentials of approximately 30 volts can, under conditions all too frequently encountered in or near ships, cause lethal body currents.

Degrees of electric shock have been tabulated, according to the amount of current passing through the body as follows: up to 0.3 milliamperes: "Tap" or "Bite"; 0.3 to 1.0 milliamperes: "Pinch" (Pain); 1.0 to 3.0 milliamperes: "Grip"; 3.0 to 15.0 milliamperes: Unpleasant stimulation of the muscles; 15.0 to 19.0 milliamperes: Stimulation and paralysis begins (can't let go); 19.0 to approximately 90.0 milliamperes: Permanent

nerve tissue damage; and above 90.0 milliamperes: Probable death. Damage to the body is, of course, dependent upon the path of the current—a path including the area of the heart, such as head to left leg, arm to arm, etc., is much more likely to result in death.

Damage to the body resulting from shock stems from one or both of two effects: *ventricular fibrillation*, and *respiratory-center paralysis*. The former is a condition of the heart following electrical shock paralysis in which the heart muscles respond in a haphazard fashion, the effect being a quivering and discordant contraction, which renders the ventricles incapable of supplying the oxygenated blood to the rest of the body. The latter is a temporary derangement of the functions of the medulla-oblongata portion of the hind brain which controls the normal stimulus of breathing. For the layman, regardless of which condition may result from electrical shock, continuance of respiration in the shocked person is the prime consideration. Artificial respiration, preferably using the Holger-Nielsen<sup>1</sup> method, should be instituted immediately. If the *respiratory-center paralysis* can be overcome and the victim resumes normal breathing, there is a chance the heart may overcome the effects of *ventricular fibrillation* and resume its normal rhythm. If respiration is not restored within the first 3 or 4 minutes, chances of recovery are small. In an unconscious state with no heart action or respiration, death occurs in about 5 minutes due to lack of oxygen and consequent damage to body cells. The number of successful recoveries when artificial respiration was started after 3 minutes is small, and when started after 5 minutes, death was almost sure. **DON'T WAIT FOR A DOCTOR! START ARTIFICIAL RESPIRATION AS SOON AS VICTIM IS RELEASED FROM ELECTRICAL CURRENT.**

While the wiper who died in the above accident may have been beyond aid when released from the current, there is no good reason why the equipment should have caused the casualty in the first place. Proper grounding of all portable electrical equipment is a *must* for safety. When ordering new equipment, order proper grounding attachments. When using it, require the grounding wires to be connected. Save lives on the ground level, for the fact remains that a properly connected grounding wire would have, in all probability, saved this wiper's life.

## GROUND IT!



NATIONAL SAFETY COUNCIL

<sup>1</sup>See Proceedings, July 1952.

## CAPSIZING TAKES TWO

Late one evening four adults squeezed into a 14-foot wooden outboard. The boat also contained several handbags, oars, and a dog.

The boat proceeded without incident to a nearby island and approached one of the private piers on the island at about 10 p. m. The people in the boat inquired as to their location and made inquiries as to location of another pier which was farther west.

In approaching this first pier, the boat had skirted the stern of a 60-foot motorboat which was tied up to it and working her engine slowly against a bowline. It was a dark night and the visibility was not good. The wind was blowing approximately 15 miles per hour. The dock lighting was also rather poor. People on the pier in seeing the manner in which the small boat had crossed the 60-footer's wash suggested that the

14-foot boat was overloaded and that two people should leave the boat. However, this warning was ignored and the 14 footer attempted to back away from the dock. In doing so the boat swamped and sank.

Several persons jumped from the pier into the water and attempted to rescue them, but succeeded only in saving one couple. The other two drowned.

This tragedy resulted from an obvious overloading of a small boat. Poor judgment in approaching the stern of a large yacht with a churning screw helped bring on the inevitable. In attempting to make a trip as overloaded as in this case, at night, with such weather conditions as existed here, similar casualties can certainly be expected.

## KISS OF FIRE TEACHES BRIDE WHAT'S WATT

Various local newspapers carried a United Press report from Modena,

Italy, which illustrates that safety is not only international in scope but may radically affect domestic tranquility. Some headlines quipped "Bus Accident," "Mr. Hot Lips," and "Burning Kiss" instead of the title shown:

Two newlyweds were treated Friday for facial burns after a kiss by the bride.

Maria and Angelo Melini had just returned from their honeymoon when the lights went out in their apartment.

Angelo went to the switchbox and Maria followed, barefooted and carrying a lighted candle and a screwdriver.

Melini grasped two loose wires and said, "hand me the screwdriver darling."

His wife kissed Melini; as she did so, the contact set off a short circuit.

Melini's mother heard the screwdriver drop to the floor. She came and turned off the current.

# APPENDIX

## Amendments to Regulations

### TITLE 33—NAVIGATION AND NAVIGABLE WATERS

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

##### PART 19—WAIVERS OF NAVIGATION AND VESSEL INSPECTION LAWS AND REGULATIONS

##### REPORTING OF EMPLOYMENT, DISCHARGE, OR TERMINATION OF SEAMEN

CROSS REFERENCE: For cancellation of § 19.23 *Reporting of employment, discharge, or termination of seamen on vessels engaged exclusively in trade on the lakes other than the Great Lakes, bays, sounds, bayous, canals, and harbors* see F. R. Doc. 53-5684, Title 46, Chapter I, Part 154, *infra*.

### TITLE 46—SHIPPING

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

[CGFR 53-24]

##### Subchapter B—Merchant Marine Officers and Seamen

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

##### PART 12—CERTIFICATION OF SEAMAN

##### Subchapter K—Marine Investigations and Suspension and Revocation Proceedings

[CGFR 53-23]

##### PART 121—SECURITY CHECK AND CLEARANCE OF MERCHANT MARINE PERSONNEL

##### REQUIREMENTS FOR DOCUMENTS BEARING SECURITY CLEARANCE ENDORSEMENT

The President by Executive Order 10352, dated May 19, 1952, and published in the FEDERAL REGISTER May 21, 1952 (17 F. R. 4607), amended the regulations prescribed by Executive Order 10173 of October 18, 1950, as amended by Executive Order 10277 of August 1, 1951, regarding the issuance of documents and employment of persons aboard vessels. The effect of Executive Order 10352 is to prohibit the employment of any person aboard a merchant vessel of the United States without the Commandant of the United States Coast Guard being satisfied that the character and habits of life of such a person are such as to authorize a belief that the presence of the individual on board would not be inimical to the security of the United States.

Pursuant to the authority of 33 CFR 6.10-3 in Executive Order 10173, as amended by Executive Orders 10277 and 10352 (15 F. R. 7007, 16 F. R. 7537, 17 F. R. 4607), the Commandant may require that all licensed officers and certificated men employed on other than exempted

designated categories of merchant vessels of the United States shall be holders of specially validated documents. The provisions of 33 CFR 6.10-1 in Executive Order 10173, as amended by Executive Orders 10177 and 10352, now require that no person may be employed on other than exempted designated categories of merchant vessels unless the Commandant of the United States Coast Guard is satisfied that the character and habits of life of such person are such as to authorize the belief that the presence of the individual on board would not be inimical to the security of the United States. The purpose for amending 33 CFR 122.02 by adding a new paragraph (f) and for amending 33 CFR 121.16 (a) by adding a new subparagraph designated (6) was to add a new category of vessels which will require seamen to have specially validated documents. It is found necessary that every person shall be required as a condition of employment to be in possession of a document bearing a special validation endorsement for emergency service prior to acceptance of employment as a member of the crew on all merchant vessels of 100 gross tons and upward, operating on bays, sounds, lakes, bayous, canals, and harbors, and other navigable waters of the United States, except such vessels engaged exclusively in trade on the navigable rivers of the United States. The purpose of amending 33 CFR 121.16 (e) was to

revise the terms and conditions which shall apply in foreign ports with respect to the employment of persons in addition to the regular crew, as well as to clarify the requirements for employment of replacements of crew members in foreign ports.

#### PART 136—MARINE INVESTIGATION REGULATIONS

#### PART 137—SUSPENSION AND REVOCATION PROCEEDINGS

#### LICENSING AND CERTIFICATING OF MERCHANT MARINE PERSONNEL; MARINE INVESTIGATIONS; AND SUSPENSION AND REVOCATION PROCEEDINGS

A notice regarding proposed changes in the rules and regulations for licensing and certificating merchant marine personnel and suspension and revocation proceedings was published in the FEDERAL REGISTER, dated February 13, 1953 (18 F. R. 880, 882), as Item I and Item XIII on the agenda to be considered by the Merchant Marine Council and a public hearing was held by the Merchant Marine Council on March 24, 1953. No comments were received from the public.

The purpose for amending § 10.01-1 and adding § 10.01-5 was to clarify and bring up to date the purpose and authority for regulations regarding licensing of officers and motorboat operators and registration of staff officers.

The purpose for amending § 10.02-9 (d) (1) was to clarify the language regarding the period of grace allowed for renewal of a license where the holder had no reasonable opportunity to do so because of service with the Armed Forces or the merchant marine.

The purpose for amending §§ 10.02-5 (e) (6), 10.02-7 (e) (1), and 10.02-9 (f) (2) was to remove from the regulations the list of U. S. Public Health Service stations or cross references thereto since the list is incorrect and information regarding such stations may be obtained upon request.

The purpose for amending § 12.01-1 and adding § 12.01-5 was to clarify the purpose and authority for regulations regarding certification of seamen.

The purpose for amending § 12.10-1, regarding requirements for certificate of efficiency as lifeboatman was to clarify the statement regarding where certificated lifeboatmen are required and to remove an inconsistency between this regulation and the requirements in § 33.30-5.

The purpose for amending §§ 136.07-40 and 136.07-42 was to delete references to "Coast Guard Courts and Boards, 1935" which have been canceled and to insert the appropriate references to the Coast Guard

Supplement to the Manual for Courts-Martial, United States, 1951. These regulations describe the joint procedures for the fact-finding body to follow when investigating marine casualties involving Coast Guard vessels or marine casualties occurring within the scope of Coast Guard rescue operations.

The purpose for amending § 137.05-5 (a) (2), regarding procedures for investigations, was to provide definitely in those cases where the investigating officers give admonitions to the alleged offenders the right to request hearings before examiners.

Subchapter O—Regulations Applicable to Certain Vessels During Emergency

[CGFR 53-30]

#### PART 154—WAIVERS OF NAVIGATION AND VESSEL INSPECTION LAWS AND REGULATIONS<sup>1</sup>

#### REPORTING OF EMPLOYMENT, DISCHARGE, OR TERMINATION OF SEAMEN

The purpose of this order is to cancel the general waiver designated § 154.23, as well as 33 CFR 19.23, effective August 31, 1953, regarding the reporting of employment, discharge, or termination of services of seamen on vessels engaged exclusively in trade on the lakes other than the Great Lakes, bays, sounds, bayous, canals, and harbors. The effect of this cancellation of waiver is that masters of such vessels subject to the provisions of subsection (1) of R. S. 4551, as amended (46 U. S. C. 643 (1)), and 46 CFR 14.05-20 will be required on and after September 1, 1953, to report monthly the employment, discharge, or termination of the services of seamen on Coast Guard Form CG-735-T to the nearest Coast Guard Marine Inspection Office.

[EDITOR'S NOTE: Due to space limitations the regulations contained in titles 33 and 46 will not be reprinted herein. Copies may be obtained by writing to Coast Guard Headquarters, care of Commandant, Washington 25, D. C.]

## Equipment Approved by the Commandant DEPARTMENT OF THE TREASURY United States Coast Guard

[EDITOR'S NOTE: Due to space limitations, approvals of equipment, corrections of prior documents and changes in names of manufacturers for May 19, 20 and 22, 1953, will not be reprinted herein. Copies may be obtained by writing to Coast Guard Headquarters, care of Commandant, Washington 25, D. C.]

<sup>1</sup> This is also codified in 33 CFR Part 19.

## FUSIBLE PLUGS

The regulations prescribed in subpart 162.014, subchapter Q, Specifications, require that manufacturers submit samples from each heat of fusible plugs for test prior to plugs manufactured from the heat being used on vessels subject to inspection by the Coast Guard. A list of approved heats which have been tested and found acceptable during the period from April 15 to June 15, 1953, is as follows:

*The Lunkenheimer Co.*, P. O. Box 360, Annex Station, Cincinnati 14, Ohio. Heat Nos. 450 through 457.

## AFFIDAVITS

The following affidavit was accepted during the period from April 15 to May 15, 1953:

*Western Nipple Manufacturing Co.*, 5022 Telegraph Road, Los Angeles 22, Calif. Bolting.

## ARTICLES OF SHIPS' STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from April 28 to June 26, 1953, inclusive, for use on board vessels in accordance with the provisions of part 147 of the regulations governing "Explosives or Other Dangerous Articles on Board Vessels" are as follows:

### CERTIFIED

*The Solarine Co.*, 4201 Pulaski Highway, Baltimore 24, Md. Certificate No. 104, dated May 7, 1953. "SOLARINE LIQUID METAL POLISH."

*U. S. Marine Chemical Co.*, 150 Broadway, New York 38, N. Y. Certificate No. 108, dated June 2, 1953. "MORTOL DIESEL LUBE OIL ADDITIVE." Certificate No. 111, dated June 2, 1953. "MORTOLIN SPECIAL BUNKER FUEL OIL ADDITIVE." Certificate No. 112, dated June 2, 1953. "MORTOLIN DIESEL FUEL OIL ADDITIVE."

*MacKenzie and Lang, Inc.*, Central Islip, Long Island, N. Y. Certificate No. 114, dated June 26, 1953. "PYROCAT F COMBUSTION CATALYST."

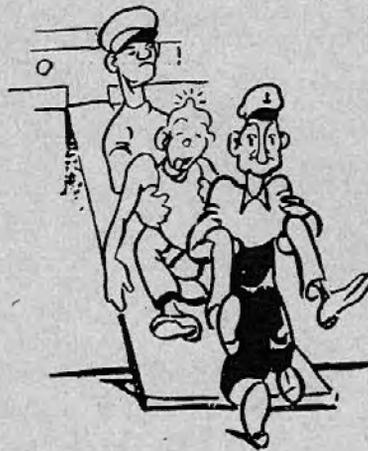
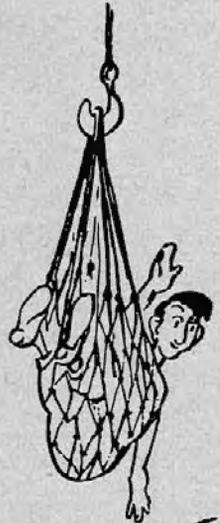
When men went aloft to cling to a yard.

While the canvas whipped and the wind blew hard

The old warning was, and today it's still true:

"One hand for the ship - - - and one for you!"

# THERE ARE MANY WAYS TO LEAVE A SHIP



BUT—  
WALKING DOWN A  
SAFE GANGPLANK  
IS BEST