PROCEEDINGS OF THE
MERCHANT MARINE COUNCIL
UNITED STATES COAST GUARD

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Ventilation—Too Late

Proceedings of the

MERCHANT MARINE COUNCIL

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The Merchant Marine Council of the United States Coast Guard

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PICTURES

The photograph of the *Pelican* in the upper portion of the back cover depicts her departure from Montauk Point on the fateful Saturday morning was made by William Morris for Outdoor Life. The other pictures are official Coast Guard photographs.

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List 141M.

COUNCIL ACTIVITIES

The Merchant Marine Council will hold a public hearing on Tuesday, March 25, 1952, commencing at 9:30 a. m., in Room 4120, Coast Guard Headquarters, Thirteenth and E Streets, NW., Washington, D. C., for the purpose of receiving comments, views, and data on the proposed changes in the navigation and vessel inspection regulations, as set forth in items I to XX, inclusive, of the Merchant Marine Council semiannual meeting agenda (CG–249). The agenda contains the specific changes proposed and where possible, the present and proposed regulations are set forth in comparison form, together with reasons for the changes where necessary. Comments on these proposed changes are desired. There will also be considered the withdrawal of approvals of certain equipment which do not meet present Coast Guard requirements, see item XXI.

Copies of the Merchant Marine Council semiannual meeting agenda (CG–249) have been mailed to persons and organizations who have expressed a continued interest in the subjects under consideration and have requested that copies be furnished them. Copies of the agenda will be

furnished upon request to the Commandant (CMC), United States Coast Guard, Washington 25, D. C., so long as they are available. After the supply of extra copies is exhausted, copies will be available for reading purposes only in Room 4104, Coast Guard Headquarters, or at the offices of the various Coast Guard District Commanders.

On November 19, 1951, the fifteenth country deposited its ratification of the 1948 Convention for Safety of Life at Sea. Therefore, the new requirements will come into force on November 19, 1952, insofar as the United States is concerned. Because of the multitude of amendments to the revised statutes as well as the numerous laws which supplement or complement the revised statutes, it is necessary to change the style of presentation of the regulations in order that those concerned or affected will know what regulations are applicable to the various types of vessels in the merchant marine. Because of the scope and extent of the changes necessary in the navigation and vessel inspection regulations, only a part of the required changes will be considered at this public hearing. Another public hearing will be announced in the near future and a separate agenda containing the balance of the proposed regulations will be distributed at that time.

At this public hearing, in addition to changes in regulations to implement the 1948 Convention for Safety of Life at Sea, there will be considered other changes in the regulations to bring them up to date. The proposed changes in the navigation and vessel inspection regulations will be considered in the following order:

ITEM I—INFLAMMABLE SOLIDS AND OXIDIZING MATERIALS DANGEROUS CARGO REGULATIONS

The detailed regulations governing the transportation of inflammable solids and oxidizing materials by vessels will be completely revised and brought up to date. These regulations are published in the Coast Guard pamphlet entitled "Explosives or Other Dangerous Articles on Board Vessels," CG–187, as sections 146.22–1 to 146.22–100, inclusive. The proposed regulations will permit a number of new hazardous inflammable solids and oxidizing materials, which have become commercially important, to be shipped by water in increasing quantities. A number of new containers for inflammable solids and oxidizing materials, will also be permitted by the proposed regulations. The proposed changes are in agreement with the regulations prescribed by the Interstate Commerce Commission. It is also proposed to renumber all the sections within this subpart in order to allow for future expansion in the regulations. Where these sections appear as references in other parts of the Dangerous Cargo Regulations, they will be corrected accordingly.

ITEM II—CORROSIVE LIQUIDS—DANGEROUS CARGO REGULATIONS

The detailed regulations governing the transportation of corrosive liquids by vessels will be completely revised and brought up to date. These regulations are published in the Coast Guard pamphlet entitled, "Explosives or Other Dangerous Articles on Board Vessels," CG–187, as sections 146.23–1 to 146.23–100, inclusive. The proposed regulations will permit a number of new corrosive liquids, which have become commercially important to be shipped by water in increasing quantities. A number of new containers for corrosive liquids will also be permitted by the proposed regulations. The proposed changes are in agreement with the regulations prescribed by the Interstate Commerce Commission. It is also proposed to renumber all the sections within this subpart in order to allow for future expansion in the regulations. Where these sections appear as references in other parts of the Dangerous Cargo Regulations, they will be corrected accordingly.

ITEM III—HEATERS ON MOTOR VEHICLES—DANGEROUS CARGO REGULATIONS

It is proposed to permit the use of heaters on motor vehicles while being transported on board vessels subject to the Dangerous Cargo Regulations. Since such heater installations present similar hazards and would require similar safeguards as refrigerating equipment which is presently permitted, it is proposed to permit heaters on motor vehicles under same conditions as allowed for refrigerating units. To accomplish this, it is necessary to amend section 146.08–11 in the pamphlet entitled, "Explosives or Other Dangerous Articles on Board Vessels," CG–187.

ITEM IV—CERTIFICATION OF SHIP'S STORES AND SUPPLIES—DANGEROUS CARGO REGULATIONS

It is proposed to charge the manufacturer of ship's stores and supplies for the cost of any test required to determine if it can be safely used on board ship. This change is based upon a request of the Bureau of the Budget. It is therefore proposed to amend section 147.03–3 in the pamphlet entitled, "Explosives or Other Dangerous Articles on Board Vessels," CG–187.

ITEM V—GENERAL PROVISIONS—TANK VESSEL REGULATIONS

The provisions of Revised Statute 4417a, as amended (46 USC 391a), apply to all vessels transporting inflammable or combustible liquid cargo in bulk. For many years the transportation of combustible liquid cargo in bulk in limited quantities on passenger and dry-cargo vessels has been permitted. In order to clarify the application of the Tank Vessel Regulations, it is proposed to amend section 30.01–5 thereof so that those concerned will be cognizant of the application of the Tank Vessel Regulations.

ITEM VI—INSPECTION AND CERTIFICATION—TANK VESSEL REGULATIONS

In accordance with the 1948 Convention for the Safety of Life at Sea, it will be necessary to conduct stability tests on mechanically propelled tank ships of 500 gross tons and over, construction or conversion of which is started on or after November 19, 1952. In order to have uniformity in terminology it is proposed to amend section 31.10–30 of the Tank Vessel Regulations and to add a new section 31.10–31 for ocean and coastwise tank ships, which sections will describe the stability tests required.

ITEM VII—SPECIAL EQUIPMENT, MACHINERY, AND HULL REQUIREMENTS—TANK VESSEL REGULATIONS

To implement the 1948 Convention for Safety of Life at Sea, as well as to revise the regulations to agree with recommendations of the Committee on Tank Vessels and similar requirements in the rules of the American Bureau of Shipping, it is proposed to revise the regulations regarding steering apparatus, electrical installations, cargo pumps and piping, bilge pumps, venting of cargo tanks, venting of cofferdams, segregation of cargo, independent tanks and construction and testing of cargo tanks and bulkheads. This will be done by amending sections 32.35–25, 32.35–30, 32.35–35, 32.45–5, 32.50–1, 32.50–15, 32.50–20, 32.35–20, 32.35–21, 32.50–5, 32.50–10, 32.55–25, 32.55–30, 32.55–45, 32.60–30, and 32.60–40 of the Tank Vessel Regulations. A new subpart regarding bilge systems will be added as subpart 32.52 of the Tank Vessel Regulations. Certain regulations will also be transferred to the Marine Engineering Regulations and Material Specifications.

ITEM VIII—LIFESAVING APPLIANCES—TANK VESSEL REGULATIONS

The 1948 Convention for the Safety of Life at Sea requires changes in the

lifesaving appliances required to be carried on tank vessels engaged on international voyages. The terminology used to describe certain items of equipment has been also changed in order to agree with terms now used in the industry. It is therefore proposed to revise the requirements regarding lifeboats, mechanical means for lowering, lifeboat winches, blocks and falls, lifeboat equipment, davits and launching devices, ring life buoys, distress signals, and signaling lamps. To accomplish this, it is proposed to amend sections 33.05–1, 33.05–10, 33.10–5, 33.10–10, 33.15–1, 33.20–1, 33.40–1 and 33.50–1 of the Tank Vessel Regulations. It is also proposed to add new requirements regarding ships' distress signals, motor-propelled or hand-propelled lifeboats, lifeboat winches, first-aid kits, jackknives, heaving lines, bilge pumps for motorboats, ladders for lifeboats, and portable-radio apparatus for lifeboats.

ITEM IX—FIRE-FIGHTING EQUIPMENT—TANK-VESSEL REGULATIONS

The 1948 Convention for Safety of Life at Sea revises the requirements for fire-fighting equipment on tank vessels engaged on international voyages. In order to implement the convention, as well as to revise and bring up to date certain requirements for fire-fighting equipment, it is proposed to amend sections 34.10–1, to 34.10–40, inclusive, 34.15–1 to 34.15–55, inclusive, and 34.20–1 to 34.20–15, inclusive, of the Tank Vessel Regulations. The proposed amendments concern fire pumps, fire hydrants, fire-hose nozzles, fire-extinguishing systems for cargo spaces, and general requirements regarding fire-fighting equipment. It is also proposed to establish new subparts regarding fire-fighting equipment in cargo spaces, pump rooms, and lamp lockers, paint rooms, and similar compartments, which will include many requirements published under other subjects.

ITEM X—OPERATION—TANK VESSEL REGULATIONS

It is proposed to change the requirements regarding fresh-air breathing apparatus on all tank vessels by amending section 35.30–20 of the Tank Vessel Regulations. This proposed change is in agreement with the 1948 Convention for Safety of Life at Sea. In order to clarify misunderstandings regarding manning of tank vessels it is also proposed to amend section 35.35–1 so that this regulation will reflect the change made in 1948 in the definition for "tankerman".

ITEM XI—LIQUEFIED PETROLEUM GASES—TANK VESSEL REGULATIONS

The petitions of various ship operators indicate that the vent-header systems on tank barges carrying liquefied petroleum gases greatly restricts the vision of the pilot on the towboat. In order to allow different arrangements for vent systems on such tank barges it is proposed to amend section 38.20–1 of the Tank Vessel Regulations and to add a new section 38.20–5. These sections will describe the requirements for venting of cargo tanks used in transporting liquefied petroleum gases on tank ships and tank barges.

ITEM XII—EQUIPMENT FOR MERCHANT VESSELS—SPECIFICATIONS

It is proposed to add two new specifications regarding "automatically controlled packaged auxiliary boilers" and "combination solid stream and water-fog fire-hose nozzles," as subpart 162.026 and 162.027, to Subchapter Q, Specification. The proposed specification for automatically controlled packaged auxiliary boilers set forth the requirements for the manufacturer to follow in manufacturing such equipment and covers design, construction, controls, required, boiler alarms, tests and inspections required, and procedure for approval. On July 1, 1951, the Tank Vessel Regulations required the use of approved type combination solid stream and water fog fire-hose nozzles for 25 percent of the fire hydrants on all tank ships. The proposed specification in subpart 162.027 sets forth the requirements for the manufacturer to follow in manufacturing such equipment and covers applicable specifications, arrangement, construction, materials, inspections and tests, marking, and procedure for approval.

ITEM XIII—PIPING SYSTEMS, PUMPS, REFRIGERATION MACHINERY AND FUEL TANKS—MARINE ENGINEERING REGULATIONS

It is proposed to amend section 52.01–15, regarding plan approval, sections 55.07–1, 55.07–10, 55.07–15, and 55.07–25, regarding detail requirements for piping systems, and sections 55.10–25, and 55.10–30, regarding bilge and ballast piping and bilge pumps as set forth in Marine Engineering Regulations and Material Specification, CG–115. The proposed requirements for bilge piping and bilge pumps will bring the regulations into agreement with the 1948 Convention for the Safety of Life at Sea. The other changes are necessary to improve safety on board vessels.

ITEM XIV—GENERAL PROVISIONS—MARINE ENGINEERING REGULATIONS

In the pamphlet entitled "Marine Engineering Regulations and Material Specifications," CG–115, part 58 contains the requirements for boilers and attachments made or contracted for prior to July 1, 1935. It is proposed to place all the requirements in part 58 in a separate pamphlet by establishing a new subchapter to contain the regulations applicable to boilers and their attachments, including piping systems, made or contracted for prior to July 1, 1935, which will be contained in parts 65, to 69, inclusive. These changes and revisions do not impose any new or additional requirements but are reworded to better present the regulations in pamphlet form. In order that these regulations will be complete, it is necessary to repeat certain regulations now published in part 50 to 57, inclusive, of the Marine Engineering Regulations and the Material Specifications. All these changes are covered in items XIV, XV, XVI, and XVII.

It is proposed to amend section 50.05 and 57.10–15 in the Marine Engineering Regulations and Material Specifications in order to reflect the changes made by establishing a new subchapter for boilers and attachments installed or contracted for prior to July 1, 1935. It is proposed to establish a new part 66 which will contain general provisions taken from part 50 to 57, inclusive, of the Marine Engineering Regulations and Material Specifications, as well as requirements for boiler plates, steel bars for stays and braces, lapwelded boiler tubes, seamless steel boiler tubes, welded steel and iron pipe and seamless steel pipes from part 58 of the Marine Engineering Regulations and Material Specifications.

ITEM XV—CONSTRUCTION—MARINE ENGINEERING REGULATIONS

The construction requirements for boilers and attachments made or contracted for prior to July 1, 1935, are set forth in parts 52 and 58 of the Marine Engineering Regulations and Material Specifications. It is proposed to editorially revise these regulations, without imposing additional requirements, and to print them in a separate pamphlet as part 67. The subjects covered in this part deal with procedure and general requirements for construction of boilers and attachments, cylindrical shells, shell joints, heads, openings and reinforcements, stays and stayed surfaces, combustion chambers and tube sheets of fire-tube boilers, furnaces and flues, boiler and superheater tubes, safety

valves, boiler mountings and attachments, and evaporators, feed-water heaters, separators, and steam traps made of cast iron and subject to boiler pressure.

ITEM XVI—PIPING SYSTEMS—MARINE ENGINEERING REGULATIONS

The piping systems installed or contracted for prior to July 1, 1935, are subject to certain requirements in parts 55 and 58 of the Marine Engineering Regulations and Material Specifications. It is proposed to editorially revise these regulations, without imposing additional requirements, and to print them in a separate pamphlet as part 68. This part contains the general and detailed requirements for piping systems.

ITEM XVII—INSTALLATIONS, TESTS, INSPECTIONS AND REPAIRS—MARINE ENGINEERING REGULATIONS

The installation requirements for boilers and attachments made or contracted for prior to July 1, 1935, are set forth in part 58 of the Marine Engineering Regulations and Material Specifications. It is proposed to editorially revise these regulations, without imposing additional requirements, and to print them in a separate pamphlet as part 69. The subjects covered in this part deal with installation, tests and inspections required, and repairs.

ITEM XVIII—STEAM AND INERT-GAS FIRE-EXTINGUISHING SYSTEMS—VESSEL INSPECTION REGULATIONS

A petition was received from the Lake Carriers Association, Cleveland, Ohio, requesting that mechanically propelled vessels navigating the Great Lakes and carrying grain cargoes in bulk be exempt from the general requirements for steam and inert-gas fire-extinguishing systems set forth in section 77.4 of the General Rules and Regulations for Vessel Inspection, Great Lakes, CG-186. It is felt that steam and inert-gas fire-extinguishing systems should not be required on Great Lakes vessels carrying grain cargoes in bulk since the records do not show many fires in grain cargoes on Great Lakes vessels. In addition many vessels are used in the wintertime to store grain cargoes in bulk. At the present time cargo vessels carrying coal in bulk exclusively are exempt from these requirements. Therefore, it is proposed to exempt all mechanically propelled vessels carrying grain cargoes in bulk from the general requirements set forth in section 77.4 of the General Rules and Regulations for Vessel Inspection, Great Lakes. This proposal applies only to Great Lakes vessels and it is not contemplated to revise the requirements applicable to mechanically propelled vessels carrying grain cargoes in bulk which navigate the oceans, coastwise waters, bays, sounds, lakes other than the Great Lakes, or rivers, as set forth in 46 CFR 61.4, 95.4, and 114.6.

ITEM XIX—LOAD-LINE REGULATIONS

The 1930 International Load Line Convention, in article 18, provides that where a particular fitting or arrangement is required by the convention a contracting government may accept any other fitting or arrangement if it is satisfied that the substitution is equally as effective as that specified in the Convention. An alternate type of hatchways for tank vessels has been found to be as effective as that specified by the Convention and it is therefore proposed to amend section 43.98 of the Load Line Regulations in order that those concerned may know about it. The 1930 International Load Line Convention also provides a freeboard table for tank vessels up to 600 feet in length and provides that tank vessels over that length shall be dealt with by the individual contracting government. Correspondence has been made with the British Government to adopt standards that would provide uniformity in the assignment of freeboards to tank vessels over 600 feet in length. It is therefore proposed to revise the freeboard table for tankers in section 43.106 of the Load Line Regulations by assigning standard values to tank vessels over 600 feet in length and up to and including 750 feet in length. These changes have been found acceptable to the British Government and will probably be followed by the other contracting governments to the 1930 International Load Line Convention.

ITEM XX—NUMBERING OF UNDOCUMENTED VESSELS—MOTORBOAT REGULATIONS

The numbering act of 1918 requires the Coast Guard to keep a record of ownership of numbered vessels for the purpose of identification and the reporting of statistics by Customs and Coast Guard districts. The present procedure for the numbering of undocumented vessels has not been satisfactory and the maintenance of accurate statistics is extremely difficult. In order to improve the procedures and to maintain accurate statistics it is proposed to revise the regulations concerning numbering undocumented vessels in their entirety. The major change proposed will require the owner of an undocumented vessel to surrender the certificate of award of number for an undocumented vessel and the issuance of a new certificate bearing a new number when the owner of a vessel(s) moves his permanent residence from one Customs or Coast Guard district to another. The other changes proposed are editorial and more descriptive of present requirements or procedures followed by the Coast Guard in the administration of the requirements of the numbering act of 1918. It is not intended to change the other requirements applicable to the public. It is therefore proposed to amend part 29, regarding numbering of undocumented vessels, in the motorboat regulations.

ITEM XXI—WITHDRAWALS OF CERTAIN APPROVALS OF EQUIPMENT

New specifications or regulations for flame arresters for tank vessels, pressure-vacuum relief valves for tank vessels, and safety relief valves for liquefied compressed gas were approved and published in the Federal Register. The various manufacturers of such equipment were informed by letter of the changes in the specifications and regulations and requested to redesign their previously approved equipment and to resubmit revised plans, specifications, and test data where necessary, showing compliance with the new or revised requirements adopted. Certain manufacturers failed to take any action on the requests of the Coast Guard to have such equipment redesigned or changed to meet the new requirements adopted. It is therefore proposed to withdraw the approvals of such equipment which do not comply with present regulations. However, such equipment already manufactured and installed on tank vessels will be permitted to be used so long as it is maintained in satisfactory condition.

Instructions for Submission of Comments

In order to insure thorough consideration of comments and to facilitate checking and recording, each comment regarding a proposed regulation shall be submitted on the Form CG-2387, or if additional forms are needed, the style and arrangement shall be the same as shown on the form. It is necessary that each suggested rewording of a proposed section of a regulation be submitted on a separate sheet showing the specific item and page number, section number, the proposed change, the reason or basis (if any), and the name, business firm or organization (if any), and the address of the submitter. Comments, data, and views may also be presented orally or in writing at the public hearing in the same manner as for submission of written comments.

SIXTH ANNUAL NATIONAL MOTOR BOAT SAFETY CONFERENCE

Held at Belmont Plaza Hotel, Moderne Room
Lexington Avenue and Forty-ninth Street
New York, N. Y., on Thursday
January 17, 1952.

Chairman: E. S. Terwilliger, Manager, Yacht Safety Bureau, New York, N. Y.

PROGRAM

KEYNOTE ADDRESS	Rear Admiral H. C. Shepheard, USCG, Chief, Office of Merchant Marine Safety, representing the Commandant of the United States Coast Guard, Washington, D. C.
A DESIGNER LOOKS AT SAFETY	Philip L. Rhodes, Naval Architect and Marine Engineer, New York City.
BOAT YARD OPERATIONS AND BOATING SAFETY	Irving Jakobson, Jakobson Shipyard, Inc., Oyster Bay, New York.
SAFETY AND THE MARINE TRADES ASSOCIATION	George Mikkelsen, President, Marine Trades Association, New York.
THE CORROSION TESTING STATIONS AT HARBOR ISLAND AND KURE BEACH—THEIR SIGNIFICANCE TO THE PRODUCTION AND USE OF PLEASURE BOATS.	Frank L. LaQUE, International Nickel Co., New York.

Chairman E. S. TERWILLIGER. It is a real pleasure to bid you all welcome to the Sixth Annual National Motor Boat Safety Conference, so, without further words, let's get under way. The keynote address this morning is to be given by Rear Admiral H. C. Shepheard who is representing the Commandant of the United States Coast Guard. Admiral Shepheard.

KEYNOTE ADDRESS

I regret, as does the Commandant, Admiral O'Neill, that it was not possible for him to be present with us this morning. His keynote message I am sure would have been profound. By this I do not mean that what I have to say is not intended to be profound but rather that I have been privileged to be a speaker before you on previous occasions. While I have received wide concurrence in principle with my views and recommendations, I get no action. Therefore, I frankly do not enjoy being before you any more than your committee enjoys having me because they know the keynote I will sound.

It is the declared policy of the Coast Guard that insofar as it is concerned, industry should not be harassed by a multiplicity of laws and regulations provided of course it gets its own house in order. We believe that better results will obtain when industry organizes to do what otherwise will inevitably fall to bureaucrats—local, State and Federal.

As you know, the Coast Guard has the responsibility for regulating recreational craft against fire through the means of fire-extinguishing equipment, backfire traps, and the ventilation of the bilges. The Coast Guard does not specify as to the construction, installation or fittings of gasoline tanks and it does not prescribe the proper venting of such tanks, nor does it regulate with respect to other equally hazardous conditions for the reasonable safe operation of motorboats.

The Coast Guard had hoped that by keeping the mandatory Federal requirements at a minimum; by stressing the self-regulatory activities by industry and operational safety by the Coast Guard Auxiliary, through education, that a high degree of safety would be achieved; that the public would not be misled and those who enjoy this sport would not be harassed by a multiplicity of bureaucratic laws and regulations.

Another example of what the Coast Guard is doing in carrying out its policy may be found in the United States Coast Guard's Merchant Marine Council. Realizing that all the brains are not to be found in the Government service, Panels of Consultants to the Council have been formed to specifically advise the Coast Guard in regulatory matters in specialized fields. One such group is known as the Motorboat and Yacht Panel. Two years ago this panel, the members of which are all well-known figures in yachting circles and who were appointed by the industry, recommended the creation of a national safety bureau for small craft. Its purpose was to establish minimum safety standards in all phases of the construction of small craft and to

place the organization's seal on the manufactured products indicating compliance with the approved standards of that bureau, which seal or symbol was to be sort of a good housekeeping stamp of approval.

Two meetings of the Panel were held and on each occasion it was enthusiastically recommended that this industry organization be formed or the Yacht Safety Bureau expanded to include boat, engine, and equipment manufacturers, and also, as members of its Board of Directors, top representatives of the Government. The potential political value of such a national organization was recognized as being very far reaching. However, when this recommendation was placed before the NEBMA it apparently died.

I regret that of recent years we have had some shocking casualties, yes, disasters, to small craft. Some of those that made banner headlines have left a lasting imprint on my mind and I feel sure they have left a lasting impression on the minds of the public—thereby eliminating many a potential yachtsman.

My opponents will no doubt say, "That there have been accidents, is certain, yet the percentage of lives lost or persons injured is lower in boating than in any other sport involving transportation." My answer is that, even so, the industry can do much to prevent many a needless accident and by so doing promote their own interests. Let me give you an example or two of the numerous accidents reported to the Coast Guard. They are not major disasters except to the mothers, fathers, children, and other relatives of the deceased.

A new 37-foot motorboat, powered with two gasoline engines, exploded and burned to the water's edge with the loss of one life. Value of boat $20,000. In addition to two main fuel tanks, there was installed an emergency tank of 30 gallons capacity located in the cabin. Directly under this tank was an electric bilge pump and forward of the engines was the shut-off valve. This tank, for its size, was of substandard gage, its joints were soldered and the shut-off valve very inaccessible and of course the location of the tank was most inappropriate.

Not long ago a collision resulting in the loss of life was caused principally by restricted vision on a 44-foot motorboat. Not only was the vision from the location of the steering wheel obstructed, but its steering was controlled by an automatic pilot. The operator knew nothing of the approach of an outboard motorboat that was properly equipped until the persons from the small craft were being churned up in its twin screws. On investigation it was found that vision was obscured extending a distance of 150 feet forward of the stem, when the boat was making 13 or 14 miles per hour. Such a condition calls for a permanent bow lookout or a structural modification. This is not an isolated case. No doubt there are many minor collisions with other vessels. Driftwood and serious casualties are always potential. Even the lives of swimmers are in jeopardy.

Preventable accidents in recreational boating show an upward trend and that to me is a distressing situation, especially so when there is no evidence that an honest effort is being made to improve this condition by the National Engine and Boat Manufacturers' Association. Craft are being shown that do not comply with the elementary safety requirements specified by law. However, the association does not seem to be concerned. The unsuspecting public could be buying short cuts to the undertaker right now in purchasing boats on display across the street at the Grand Central Palace. Collective activity by industry is necessary if for no other reason than to eliminate unfair competition wherever safety is a factor. Safety equipment that the experienced yachtsman would insist upon for his boat should not have to be advertised as an extra.

Every branch of the transportation industry is organized to improve safety. In the automotive field there is the Society of Automotive Engineers. They are credited with the development of such important safety items as the four-wheel brake and safety glass. In the aircraft industry there are several nongovernmental organizations working to improve safety. In ocean shipping, we have the American Bureau of Shipping, a nonprofit organization, supported by underwriters, shipbuilders, and shipowners. It is this organization which may be credited to a great extent to the technical progress and safety developments in our merchant marine.

The *Pelican* disaster of last September where 45 lives were lost on a 42-foot boat, coupled with the loss of the *Jack*, 33 feet in length, in Long Island Sound during the summer with the loss of 11 lives, is bound to bring about new controls. The Coast Guard, recognizing that such controls are inevitable, has proposed Federal legislation and it is hoped that such action will prevent the adoption of panic legislation by the States and the Federal Government that would extend to all small craft.

The bill sponsored by the Coast Guard carries a provision for the inspection of motor-passenger boats carrying more than 12 passengers. I know Congress will want to know why we use 12 passengers as a criterion. Why not five passengers or any boat carrying any number of passengers for hire?

We had hoped our answer to that question would have been that we believed that through the activities of the Engine and Boat Manufacturers a safety code was being or had been promulgated. This action, plus the activity of the Coast Guard Auxiliary, should obviate the need of extensive controls for the strictly recreation craft and the smaller commercial craft. However, I fear that the boat industry is permitting its efforts to lag to the point that before long it will be overtaken by legislation so the keynote that I would stress at this, the Sixth Annual National Motor Boat Safety Conference, is that an honest effort at accident prevention by the NEBMA, not just conducting a symposium on safety such as this, would not only be a humanitarian move but one that would pay dividends to its members and cause it to enjoy good public relations.

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Mr. TERWILLIGER. Thank you very much, Admiral Shepheard. I, for one, feel sure that the industry sees the way; I only hope it is not too late.

Ladies and gentlemen, next on the program this morning is one of our leading naval architects and yacht designers, Mr. Philip L. Rhodes.

A DESIGNER LOOKS AT SAFETY

I have been asked to discuss safety from a purely designing standpoint. A naval architect is pretty much like a lady. We have but one thing and that is a reputation which we have to guard at all times. We never lose sight of the fact that eternal vigilance is the price of virtue.

Sometimes we are accused of spending too much of the owner's money on fancy construction. But I challenge that statement. I think you are going to have Irving Jakobson say the same thing when he speaks to you. Irv and I have been cohorts in the construction of a few interesting boats over our brief periods in this game and I hope we will have many more. We always have arguments on the matter of strength. He will want to know why shouldn't we build deepness up here, another one-eighth inch or so, and I generally have to give in to him because he can always prove that he wants to use a little bigger fastening, and by the time he gets the fastening through there will be no wood or steel left.

But there is one thing that all owners want and that is speed. It is just like alcohol and gasoline, speed and safety don't mix too well. The fastest boat in the world is not the safest boat, nor is the slowest. I have a person working with me now for whom I am getting up some sketches. He wants a good-sized boat and emphasizes that safety shall be the first principle in its construction. But he says, "Can't I possibly get more than 11 knots; can't I have 13 or 14?" I said, "Yes, sir, you can and you will still have a boat that will not sink or cause you any distress." That is the funny part; he is very keen on safety, he means it, as an experienced man; I know personally of his having boats for the past 18 years and yet he wants a couple of extra knots. Well, I think we will arrive at a pretty happy compromise. There is one thing, however, we will not do; we will not have an unseaworthy boat, no matter whether the job goes ahead or not. This boat will be big enough to be of steel, which means she will have a watertight bottom and watertight bulkheads, items so frightfully hard to accomplish in wood construction. We can have a watertight bulkhead in a wooden boat, but it is pretty much of a chore and it doesn't always stay that way. Steel, or any metal, becomes a perfect cinch.

We can figure the stresses that are set up in boats, but we very seldom do it. We have to do it on naval jobs where we must save every ounce of weight. We must be weight-conscious no matter what kind of boat we are doing and we must also bear in mind that after the boat is delivered to the owner a lot of changes will take place over the boat's normal period of life. Take a small boat, something around 30 feet; the owner will want to put in ship-to-shore telephone; he will want to put in RDF and maybe a little later on he will want loran. And if he can afford it, he will have all of these wonderful gadgets that are so fascinating and mean so much to navigation. Now, all of those things are high, everyone of them, so we have to have that in mind when we design a boat.

Not so awfully long ago there was built up the Hudson here a double-end sailboat and it was patterned after the Norwegian model that we all recognize, a true double-ender. It was deep and they were going to make it really husky. I don't know how thick the planking was, but at least twice as thick as it should have been. The clamp, I remember somebody telling me, was about so deep (illustrating), and about 4 inches thick. They put in telephone poles, practically, for masts. When they tried that boat out the first zephyr knocked it right on its ears; the boat was a complete failure just because they put in twice as much wood as they should have. They raised the center of gravity so high that it was unstable. Now, I don't want to go into the subject of stability. If you want to know about that you can always find out. It is not difficult, but the point is, it is one of the things we must keep in mind distinctly at all times.

You can have a boat too stiff for comfort. That is particularly true of a powerboat. You can have it so stiff that it will come up and hit you on the bottom of your feet every time you take a step and it will probably throw you and hurt you.

A more comfortable boat, naturally, and in many cases the safe boat is one which has a slower and easier roll. Stability and stiffness should not be confused. A boat can be very stiff like a raft, which is the stiffest of all boats, but a raft doesn't have good range of stability. As soon as you get the edge of the raft under it goes right on to capsize. A boat that you can incline very easily, what you might call a tender boat, may go through 100° before it loses its quality of stability. One of the greatest things having to do with range of stability is freeboard, and that is why a tanker, particularly a small coastal tanker, doesn't have much over 60° or 70° of inclination when it is loaded before it loses its stability. A modern off-shore yacht, a modern sailboat with its longer ends and immense amount of volume and high freeboard has to be inclined many degrees before the deck is under. I have tested some in my work and figured 115° to 120° of inclination necessary to lose stability. Of course, if there is a big sea it might go earlier, but that only goes to show the value of freeboard, and it shows where the raft, the stiffest of all, loses its stability so quickly because it has practically no freeboard at all.

I don't know whether I have covered my viewpoint on safety. One thing is sure—we want to follow all rules. We watch new regulations as they come out, we watch, encourage, and solicit the recommendations of the Coast Guard, our greatest friends. As the Admiral told you, they are looking to us to regulate ourselves. We have started to do it, we have the urge, but we haven't got far enough yet. It is tedious and tiresome work, I know that, but somebody has got to do it and I can be counted on to help. I know Irving Jakobson can and every representative builder in the country. But if we don't do it we are going to get what the Admiral characterized as "Panic Legislation," where some Congressmen want to make a field day for themselves and get up and pass all sorts of crazy things.

I can remember about 15 years ago when there were some tentative regulations about to be issued by the Coast Guard. Some of the things they wanted to do to ventilate a little runabout were simply awful—it would just about have ruined the design. Now we don't want that sort of thing to happen, but we must work with them, take every regulation they have and use it, try to improve on it, and offer helpful suggestions.

I have one thing to say which I don't think does me any good. When we design an average boat we have got to stop somewhere in the plans, and we leave an awful lot to the builder, especially in regard to the motor installation, the tank, and so on. That is one reason why a designer always wants to see his boats built at a good, fine, reputable yard. There is a limit to the fees we get and, consequently, a limit to the work we can do on a given design. I am ashamed of the fact, but I know that any honest person in my game will admit the same thing. On other jobs we are able to draw those things out in great detail; we do try to specify how they should be done; we do call attention to the regulations and assume that they will be followed.

I would like to close on one other very brief message and that is no

matter how much care we put into design with respect to strength, proper fastenings, life rails, properly calculated spars, and so on, there is yet the owner himself who is just as big a hazard as anything that we could possibly incorporate in the boat. I have a 30-foot motorboat now and I am getting another one, a 32-footer with twin screws, so I will have a little more gasoline to look out for. Our family got quite a kick out of the boat last summer and we use it a lot. We stopped at the yacht club dock to get some gas. I was a great smoker until a month ago when I quit, and my wife was never a smoker, but sometimes on a gala occasion she will have a cigarette. We tied up to the dock. One of the kids got the gas hose, took it over, and we were waiting there for the 40 or 50 gallons to go in when my wife said, "I think I will have a cigarette." She was sitting there in a nice easy chair in the stern of the boat and I said, "You will not! I am going to put a sign in this boat here that will make an example of you." Just imagine if anybody would see Phil Rhodes, who thinks he is a yachtsman and a designer, lighting up a cigarette for his wife while they were putting gasoline aboard. That was one that I don't think any of my family will forget.

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Mr. TERWILLIGER. Thank you very much, Phil. I think all of us are rather conscious of the carefulness and conservativeness of the proverbial Scotchman. If we think of the stability of the boat in the same manner we think of a Scotchman's attitude toward a restaurant check, we know that neither will ever tip.

We are also going to hear from another designer who happens to operate one of those very excellent building and servicing establishments that Phil mentioned as being a preferred place for constructing boats he designs. Mr. JAKOBSON.

BOAT YARD OPERATIONS—AND BOATING SAFETY

Ladies and gentlemen, it is an honor to be on this program and share it with a panel of such distinguished people, all of whom are outstanding experts in their fields.

I have frequently had the pleasure of being teamed with Phil Rhodes on programs of various kinds and I am now beginning to think that he is the rascal who is responsible for my being here today, since we appear together on panels of this nature too frequently to be merely coincidence. I can only say, however, that Phil, if he is the rascal, is a very fine one, and being associated with him in any sort of a venture is an honor and a privilage.

Much has been written about safety, the Coast Guard, the National Fire Protection Association, the Yacht Safety Bureau, and many others have written and spoken about safety and there is very little that I can add except this: We must reiterate safety; we have to talk about it; we have to think about it again, again, and again. We can never cease talking and thinking safety. Hence, if I tell you some things that you already know—and I am sure most of you do—it is simply because of this philosophy which I believe we must maintain by constantly talking and thinking safety.

Safety in a boatyard or a shipyard automatically falls into two categories—the first one being the safety of the human being, and the second one being the safety of the plant and the boats in the plant.

Let's speak about the safety of the human being first. Unless we are very hardened and callous individuals, no one likes to see anyone get hurt. Broken bones, bruises, fractures, cuts, and attacks from gas fumes and all other types of hurt create pain and discomfort to the individual. We, being human, are naturally sympathetic towards others and dislike to see our fellow man injured or hurt in any way. No one, willingly, wants to contribute to the cause of an accident. Yet the greatest majority of accidents are the result of carelessness on somebody's part.

In a shipyard the people subject to accidents fall into three classes, the greatest number being the shipyard employees, next the foremen and the supervisory staff, and last the plant executives. However, the order of responsibility for accidents is exactly the reverse. Just as executives constantly seek good management, wise policies, and sound investment as good business procedure, should they also seek safety throughout the yard. Loss of time due to accident is a serious matter, particularly nowadays when most yards are experiencing increased shortages of manpower. Hence, aside from the pain and anguish which results from many accidents, the manpower loss is a serious matter that is reflected in actual costs. Strangely enough, the very group of human beings, the employees, whom we, as executives, should try so hard to protect are their own worst enemies when it comes to safety. Most shipyard accidents are the result of just plain carelessness on the part of the man who has been hurt, sometimes from the contributing carelessness of some other worker, and it has been my experience that they become careless when there are fewer accidents. They become too forgetful. They put up scaffolds in a haphazard way, they leave exposed nails in pieces of wood, cast aside guards over machines which are specially put there to protect them. They drop things without looking to see who is below, and all sorts of careless things that produce accidents, and then when an accident does occur they become conscious of the cause of the accident and become quite careful for a while, only to resume this carelessness again as time goes on. That has been our experience and I think that of a great number of others.

I don't suppose we can blame the workmen too much for this since it is, more or less, a human trait, but it is this carelessness that we must try to overcome. Now, how can we do it in a shipyard?

In a small plant there can be no safety department or safety engineer because the business isn't large enough to warrant the maintenance and cost of such a department. So it gets down to the active management being the ones directly responsible for the practice of safety. They, in turn, should make their foremen and leading men their deputies in the practice of safety. The foreman should be constantly on the alert to spot unsafe conditions and should correct these situations immediately. They are the ones who are in close contact with the workers in the yard and they, therefore, should think and practice safety at all times.

Yard management should have safety in mind every time a journey is made throughout the plant. They should create a check list of safety and safety measures and make sure that these are being followed. Management should chart the list of all accidents that occur in the plant and see which repeat themselves most often. The cause of repeat accidents should be studied to see if it cannot be eliminated. A generous display of safety posters, as a constant reminder, will aid considerably in making safety a habit, and the business of making safety a habit is something for which we should all strive to achieve. We all create habits and safety is one that certainly should be taken care of.

Now let's talk about the safety of the plant, because that is pretty important; next to safety of the human

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being, it is the number one job. Regardless of the extent of coverage provided, no insurance adequately takes care of a loss which has been sustained by accident or fire. A long time is required to erect a building, to make a machine, to do anything requiring the assembly of material by manpower, but the destruction of these things is usually accomplished in a very short time. Five months may be required to erect a building, 15 minutes may be sufficient to destroy it completely. This lost time and material is difficult to replace, and today, with labor and material being so short, it is questionable if a destroyed item can be adequately replaced. Hence vigilance and safety for the plant is needed today more than ever. Much has been written about safety in shipyards and boatyards. The manual prepared by the National Fire Protection Association for boatyards and marinas is a well-thought-out booklet, very well written, and delves in great detail regarding safety measures. It should be the bible of every shipyard manager.

I would like to lay emphasis on two or three measures which shipyard men should never forget. The first one is good housekeeping. Disposing of trash and rubbish should be undertaken as quickly as possible; the reason is obvious.

Second is accessibility to all fire-fighting equipment and first aid stations.

The third is good illumination at night when watchmen make their rounds.

There are many others, of course, which are equally important, but my travels through various yards have shown me that these measures are sometimes very sadly neglected, particularly the first one about good housekeeping.

Now, I would like to make a suggestion to this group which is probably going to make me very unpopular with my contemporaries: I think that boatyards and shipyards should be rated by existing safety organizations. If a set of minimum standards were made to which shipyards had to comply, I believe we would have fewer shipyard casualties and losses. Those shipyards which do not comply with such standards should be denied insurance coverage. At first thought this may appear to be a discriminatory suggestion, but I believe that all thinking persons will agree that great good can be derived from such a procedure. Inspection of the yards should be undertaken by practical and sensible men, not follow the pattern of some Government agencies whose demands for fire protection in shipyards border on the ridiculous. I am certain that the yards which would be denied insurance because of their failure to measure up to a set of standards would promptly take steps to comply with them.

It just doesn't seem to be fair to have one yard which seeks all kinds of devices for safety, fire and accident protection competing with one which completely ignores it.

Now, let's go, for the moment, to the boats in the yards. They are there for repair or storage. The association booklet which I spoke of covers the matter of laid-up boats in a very thorough manner and the owners should in all instances authorize the yard to lay up the boat in accordance with these accepted practices.

The repair work on these boats should be carried out with constant regard for safety, both as to the employees and the boat itself. The fire hazard of boats powered with gasoline engines is constantly with us and we should never relax in our vigilance. At our own plant we make a practice of steaming all gasoline or fuel tanks which need repair. At first thought this might sound like an expensive operation, but a small steam boiler is easily procured and not much effort is required to hook-up a tank to steam after it has been removed from a boat.

When I was requested to appear on this panel, I was asked also to say a few words regarding boating safety. Although this is probably more within the realm of the designers, I do have a few comments on this subject.

A great amount of literature has been prepared and distributed with emphasis on the installation of gasoline tanks and engines in pleasure boats. This has been mentioned so frequently that most of us now, automatically, install tanks and engines in accordance with good and approved practices. I feel that now is the time that we should make an equal emphasis on the safety of other parts of the boat. The tendency with stock boats, in recent years, has been to eliminate some of the real safety features and concentrate on chrome-plated trim, streamline deckhouses and other features to lure the landlubber to the joys of being afloat. I believe that a lot of the fancy trimmings could be eliminated and money thus saved be used to provide safer and more seaworthy boats.

I cannot accept the argument that a pleasure boat does not need seacock valves at its underwater connections, particularly when a rubber hose is the only means of connecting the hull fittings and the water pump to the engine. I cannot accept hatches which are loaded up with chrome-plated hinges and trim; we have no means of dogging them down to make them really watertight.

I cannot accept cockpits which are not watertight and designed with their floor level at or below the waterline. A so-called stock boat at one of our moorings last fall sank because choppy conditions in the harbor caused waves to back up through the cockpit scuppers and fill the boat.

Forward cockpits with access into the cabin aft of same should be forbidden.

The above are but a few of the many deficiencies to be found in some of the boats which are built today.

I believe that all boats, both custom-built and those built in factories should be built to minimum standards of safety and that some organization should approve each boat that is turned out.

Perhaps this could be or should be the work of the National Association of Engine and Boat Manufacturers, perhaps the Yacht Safety Bureau or some other existing organization that is concerned with safety and accident prevention.

On larger boats we have the standards of the American Bureau of Shipping, and no boat will be issued a certificate from that organization unless it complies with their rules and regulations for its intended service. I do not propose that anything as large or as complicated be set up for pleasure boats, but I do believe that something of this nature is sorely needed.

The underwriters and insurance companies should then refrain from insuring a boat unless it complies with the accepted standards of safety

and construction. I think this would result in fewer losses and fewer accidents. Some boat builders and manufacturers would probably say that such a system would increase the cost of the boat. As a boat builder, I naturally want to find ways and means of decreasing the cost of boats, but I also want the boats to be as safe and foolproof as possible for those who are going to use them.

In my opinion, a seacock on an underwater fitting is a lot more important than a chrome-plated bit of folderol that is serving no useful purpose. Save the cost of the folderol and put it into seacocks.

If we in the boat building and repairing business make a serious effort to make pleasure boats just as safe as possible we will avoid the possibility of Government regulation. Every time there is a serious accident on a pleasure boat, particularly an explosion, a fire or a sinking, the Government comes that much closer towards regulation of boating and the industries associated with it. I am sure that none of us want any more regulation from the Government than we can possibly avoid. Yet this may come to pass if we in the boating industry do not take steps to correct some of the laxity that exists in the construction of many boats.

There are many skilled and able men in our industry who could devise a set of rules and regulations for minimum standards of safety, and I urge serious consideration of the formation of an industry self-governing body of this nature.

In closing, may I compliment Ed Terwilliger and his associates for the wonderful job they are doing in creating and broadcasting safety rules. We are all a lot more safety-conscious today than we were 10 years ago, mostly through his efforts and those of others who are dedicated to the same philosophy that he has. We must now continue to spread his gospel to our foremen and our employees and to the boat owners themselves.

Thank you very much.

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Mr. TERWILLIGER. I think our program is full of privileges this morning, and let me assure you it is a real privilege to listen to George Mikkelsen, the president of the Marine Trade Association of New York. Mr. Mikkelson.

SAFETY AND THE MARINE TRADES ASSOCIATION

Mr. Chairman, Admiral Shepheard, Fellow Speakers, Ladies and Gentlemen: Some years ago a very charming, well-dressed lady called at our boat showroom in New York and sent word in that she would like to see me personally. She introduced herself as Mrs. Blank, the wife of Dr. Blank. I didn't immediately place the name, but it is not possible for me to remember the names of all of our customers. She told me that their boy was graduating from high school, had been an honor student, and they were very, very anxious to present him with a fine graduation present. He wanted an outboard motor and boat. Well, as our conversation developed, I sensed one of the rare opportunities to put over a big sale. You know the boss, every now and then, likes to turn in a big sale just to show the rest of the organization that he still has the know-how. I started off rather modestly showing her a 14-foot boat and a 10-horsepower motor. That seemed to be fine, so I ventured to a 22-horsepower and a more de luxe model boat. She was very agreeable about the whole transaction, and said that I had been so fine in giving Dr. Blank service with his fishing motor some years previous that they were leaving the entire matter in my hands. With that encouragement, I went for the big kill. I said, "We have a 50-horsepower motor, we have a de luxe racing runabout; it is one of the finest, fastest outfits that we have." I showed it to her, and she said, "If you recommend it, fine." So we sat down and I wrote out a very fine order, feeling that I would be able to tell the salesmen on the floor that they simply didn't know how to sell. Picking the order up, she took a copy of it and said that Dr. Blank would send his check along with the shipping instructions.

I went to the door with this very charming person and just as she was about to say "good-bye," she turned and told me she had dismissed her chauffeur for the day and found herself in a very embarrassing position, that she did not have any money with her, and would I either cash a small check or advance her a small amount which I could add to this very profitable order. Without a moment's hesitation, I looked at her and I said, "No, I am sorry." For a quick second she looked me in the eye and turned suddenly and left.

That charming woman was a fraud, she was a faker. She spent that entire period of time for the purpose of taking me for $10, $15, or $20, whatever I might advance.

How could I be so sure, and without any hesitation, say "No, I am sorry?" During the course of the conversation the one thing that bothered me a little bit this was coming too easy. She made one mistake that put me on guard. When I took her over to the fastest outfit that we have in the place and she said "yes" without hesitation, I knew there was something wrong, because there isn't a mother of a boy that is not concerned with safety. No mother readily approves of her son having the fastest boat; that was the tip-off, safety.

I tell that story to show you that we in the business are concerned with safety for one tough, hard-boiled reason: It is profit. And I hope I am not reported to Washington on that one.

Admiral Shepheard, today, as a representative of the Marine Trades Association of New York, I would like to offer a few new teeth for the strong jaw of safety that you are growing. I think that our Marine Trades Association can contribute a great deal. We approach safety from an entirely different angle. We are human, we do not like to see anyone hurt. When I come home at night and my wife gives me the big blue eyes, I know that one of two things has taken place; she has either charged more at the department store than she should have or she has smashed up the car again, and my first question always is, "Are you all right?" "Was anyone hurt?" We know, in the marine business, we don't want to see anyone hurt; we don't want people to lose their lives. But we are in the boat business to make money and are as concerned with our broken pocketbook as we are with your broken arm. I think, from the profit angle, that we can do a great deal in the years to come to build up safety in pleasure boating. We have thousands of people over at the Motor Boat Show, many, many thousands. Let's not talk about a boating market; we have it. When people line Lexington Avenue and for blocks around and pay to go into a boat showroom to look at our product, we don't have to talk about "Where is our potential market?" Brother, it is all around us.

Our problem, in the trade, is not to locate a market; our problem is to convert that market to boating. Take all of the questions over at Grand Central Palace and boil them down and you have just three questions. The people want to know first, "How much will it cost?" Translate that to "Can I afford to go boating?" It is very simple; we have to make boating available to them and their pocketbooks. Secondly, "What will it do for me?" The translation on that is, "How fast will it go, what horsepower is it, how much does it weigh, what will it do for me?" And then the third

question is, "Is it safe?" And those of you concerned with the sale of boats and motors know that that question is thrown at you very, very often, "Is it safe?" Now, through the Marine Trades Association we are on a program to expand our market; we are out to build up our business, and we know that the only way we can do that is to acquaint the public with our services, our facilities, and make it easy for them to go boating.

The Marine Trades Association of New York was reactivated about 3 years ago. We are on the way to build up the boating business; we have over 300 marine-dealer members in this territory right now. As a basic part of our selling program, our profit program, we have developed a membership plaque. We are encouraging the prospective boat owner to look for this plaque, for he will receive better value and more service from a member of the Marine Trades Association. In conjunction with that we have a code of ethics; we call it "A Pledge to the Boat Owner." We dedicate ourselves to the boat owner. We start off—"We will make the welfare and satisfaction of the boat owner our paramount interest." He is the fellow we must start with. "We will offer guidance, instruction, and general assistance to all boat owners, particularly to the newcomers." If we hope to expand business we must do that. Now, I will skip a few of these. Of general interest is—"We will offer only quality merchandise, safe, seaworthy products." We are not going to deal in anything that is not quality, safe, and seaworthy. We feel that if we handle our program correctly we are going to build up our own individual businesses. We can forget all about safety, as such, but from a profit basis we know that it must be one of the keystones in our program.

Another encouraging thing is happening; throughout the United States today we have marine-trades associations springing up, Florida, California, Illinois. They are copying our program in many respects. It is our hope that some day, through our efforts, the Marine Trades Association will become a national organization, in its way, dedicated to work somewhat along the lines of the very fine United States Power Squadrons. It will take years, but we are on the way. We are growing and, Admiral Shepheard, I would like, on behalf of the marine dealers in the New York territory, to add their challenge. Industry on the dealer level intends to do something toward better and safer boating. We invite everyone to join us and encourage us in our efforts.

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Mr. TERWILLIGER. Thank you very much, George Mikkelsen.

Ladies and gentlemen, we are down to our last speaker but I assure you that the picture that Frank LaQue is going to exhibit is actually a prepre-, premier. In fact, it isn't finished yet.

Mr. LaQue is the head of one of the most interesting organizations in this country and I speak of the Institute of the Sea Horse. His title in that institute, I understand, is Doctor of Deterioration, so I give you Mr. Frank LaQue, Doctor of Deterioration. Mr. LaQue.

THE CORROSION TESTING STATIONS AT HARBOR ISLAND AND KURE BEACH—THEIR SIGNIFICANCE TO THE PRODUCTION AND USE OF PLEASURE BOATS

Mr. Chairman, Admiral Shepheard, Fellow Speakers, Ladies and Gentlemen: When Ed Terwilliger asked me to appear today to describe the activities of what he calls the Sea Horse Institute, I, of course, agreed. I thought you people might be interested to know that there are some activities of a research nature continually going on. I think they have a real bearing on your problems and particularly on the question of safety on which I am engaging your attention today. Subsequently I managed to have some pictures taken in connection with another project and have had them put together to show you how they fit into these preliminary remarks.

Perhaps I had best start out and give you a little history of our operations. For 30 years or more my company has been concerned with the studies of the behavior of metals in marine environment, and we discovered very early that the way to study marine corrosion was on or in or very near the ocean rather than some remote laboratory. So we started to maintain test stations here and there with very unsatisfactory answers. Generally we would lose the whole works by hurricane or tides.

Finally there came a time when I had a particular problem. The Newport News Shipbuilding Co., because of the lack of ordinary steel, put some nickel-steel plates in the hull of a vessel and after that vessel came back some years later we discovered that these plates were performing much better than the rest of the ship. That was welcome news, but we are always susceptible of good news and thought that possibly the good behavior of the nickel-steel plates had been the result of their association with carbon-steel plates and might have secured some electrolytic protection. So we were anxious to see how the different steels would behave if they weren't joined to each other in a structure. About that time I happened to be visiting the Ethyl Dow Chemical Co. at Clear Beach, N. C., where they were extracting bromine from the sea for the manufacture of ethylene dibromide for aviation gasoline, and they were pumping water through a channel at a rather high rate, something on the order of 200,000 gallons a minute at the time. That seemed to be an ideal place as it was somewhat sheltered and protected.

So I started out to get steel for the tests. I wrote the Republic Steel Corp. and said I wanted some 2-percent nickel steel and I wanted some ship steel, carbon steel. They said, "We will let you have it, but we have seven or eight other steels we would like to have investigated at the same time. Would you mind running tests on them too?" I said, "Sure." Then they said, "Our stainless-steel department is interested and they would like to include some stainless." Our people thought, "Well if you are going to test stainless steel you had better test some of the nickel-copper alloys." When we got down to about 30-percent nickel in the scheme, we got into the brass business, and I wrote to the American Brass Co. They said, "Sure they would give me nickel, but look at all of the bronze, manganese bronze, and silicon bronze" and so forth, and then they said, "Aluminum is appearing in the picture and we think you should include some aluminum."

As you can readily see, this enterprise, starting out with two simple steels ended up finally where we had 5,000-odd test pieces hanging in the water, and finally we had a real project on our hands although it didn't start as such. Over the years and by similar methods the whole program has been expanded, sometimes in an organized way and sometimes not. We started this in 1935. In 1940 we added to the underwater tests atmospheric exposures and subsequently we became engaged in studying the effect of sea water on materials when sea water was moving at high velocity, such as in pumps and condensers and pipelines and so forth. We have been fairly broadminded in what we will do for people. We are not confined to metals; we have done a great deal of

work for some of our friends in the paint industry such as studying anti-corrosive and antifouling paints. We have worked with the Navy on such problems. We even get into wood. We have had on occasions as many as 10,000 wood panels to test at one time, studying the effect of wood preservatives and the ability of the woods to resist the destructive action of teredos and other boring organisms. We have cooperated with the cordage people in developing improved treatments for cordage and in evaluating the new synthetic cordages, nylon, and so forth. We do a lot of these things simply as accommodations for people because we have the facilities. We do not compete with commercial-testing stations who may be engaged in business; we don't charge people for what we do ordinarily, unless something very special is required.

We have only one philosophy, I guess; we tell people we are interested in discovering things. By helping them discover things we are not in the least interested in helping them demonstrate things. If people come and say, "We have perfected a paint," we say, "If you have perfected it there is nothing for us to learn, there is nothing for you to learn. We will not engage in that sort of activity."

We test things in the form of panels; we test models of actual structures; we test full-scale structures. Everything we use becomes a test; the whole building is a test, the offshore piling that we use to support our racks, every pile in the thing is a test of some method to protect that pile. We make everything into a test. The laboratories have grown. We now have working for us a full-time staff of 11 people, doing nothing but studying various and sundry forms of marine deterioration and what can be done to prevent it. We accumulate quite a mass of data.

We have meetings, very informal meetings, called the Sea Horse Institute Conferences, each year. People come and we talk over what we have done the year before; we discover where the areas of agreement and disagreement are so that we know where we must concentrate our efforts. These meetings are recorded and we distribute the records. We cooperate with industry, and we cooperate with the Navy to a very considerable extent. As a matter of fact, our research formerly done at the experimental station at Annapolis has now been moved down to Harbor Island where their equipment is operated, under their direction, by us. A good deal of the Navy's research is being undertaken there. We cooperate with the Coast Guard on a somewhat smaller scale, but occasionally we have been able to provide them with certain facilities and they have helped us in the same way. We work to some extent with the Army and Air Force in connection with problems related to structural parts of airplanes.

I think the significance of what we do to you is very obvious. We are all agreed that the ultimate safety of what is put to sea is determined by the performance of the materials used therein, be it the performance of the hull, the performance of the tank, whether it be the performance of the propeller or the shaft or the engine or the gasoline tank or fuel line; whatever it may be, safety ultimately depends on the material doing what it is supposed to do, at the time it is supposed to do it, and not be subject to premature, unexpected, or other forms of disastrous failures which have not been provided for.

We are quite prepared, as I have indicated, to continue to cooperate with the industry, either by direct contact with any of you who may have problems you think we could help you with, or Ed Terwilliger's Yacht Safety Bureau. He has given us some suggestions in the past as to things that needed studying, and if we are given time and the opportunity I think we can probably rig up to do most anything that needs to be done by way of studying the deterioration of materials in marine environment.

I have here today Mr. Harry Paterson. He is the manager of the test station and he is the guy that I say can rig up to do anything that you can conceivably ask him to do. Mr. Paterson.

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This movie, as I said, was made in connection with another project. We haven't got a sound track on it. If I can get down where I can see it and still talk, I will give you a little running comment on some of the features that are shown on the screen.

As Ed Terwilliger indicated, this whole operation has become identified as the Sea Horse Institute. It is a unique technical organization in that it has no officers, it has no by-laws, it has no dues, it has programs at which no papers are given. The meetings are entirely devoted to discussion. It is always off the record; no one is quoted directly. We feel that more truth comes out in that kind of a meeting than in the more formal technical society meetings where a man has to live forever with his unguarded statement.

That tower in the background is a constant pressure tank used to supply water to tests which must run with a constant rate of water flow. It pumps each day, for purely testing purposes, 10,000,000 gallons of sea water, which happens to be about the same volume as used by the city of Wilmington. All of these pumps are tests; we test packing, we test shafts, we test propellers, we test casing materials. We also test motors and motor windings. The piping systems become tests; this set-up here is a model of the salt-water piping system such as might be used on a destroyer. We have in it all of the valves, fittings, elbows, and so forth that would be in such a system. These tests are run to destruction; they are full scale tests at full operation. These are the suction lines to the pump; we use those to test paints and surface preparations for painting. On this offshore dock here we have all kinds of models in full-scale units of heat exchangers. This structure here is used primarily to support racks on which specimens are immersed in the ocean. The water you see falling there is coming out of a trough; we have 600 feet of trough in which we can expose specimens of this sort. This happens to be some test specimens in the study of propeller-shafts material. That 600 feet of trough makes a very convenient place to expose small test pieces. This stuff at the right which looks fairly substantial is part of the test. We can expose specimens at half-tide level or fully immersed. All of these cables that you see here supporting racks for tests are being tested as materials for mooring. We are developing some shackles to be used with galvanized-steel chains. We have an unstable raft for getting around in here to see the extent of marine fouling that occurs. The racks themselves and the particular panels you see there are obviously not antifouling.

The water at this place is unpolluted sea water of full salinity. The station is located on an inlet between Wrightsville Beach, which is an offshore island, and Carter Island, which is closer to shore.

It isn't often that we can examine specimens like this. It must have been extremely low tide. That is a magnesium anode being used in studies of the cathodic protection of piling; in connection with the more scientific work in the laboratory we have done a good deal on the fundamentals of protection.

This rig you see here is the apparatus used for hauling the racks from the water. Some of the racks loaded will weigh 500 pounds or 600 pounds. Those steels you see in the foreground are part of a program of developing various steels.

This is a particular set of specimens that happens to be on that rack, examples of two kinds of corrosion prob-

lems that are probably of interest to you. The first has to do with galvanic corrosion. We wished to show the effect of the relative areas of the two metals and the extent of the galvanic action. What we did was simply to take some steel plates and put copper rivets in them so that the area of steel was relatively large compared to the area of the copper. You see the copper rivets, of course, survived, but if you put steel rivets in copper plates the area of the copper is so large that, as you can see, the steel rivets are actually destroyed, whereas the steel around the copper rivets, in the other plate, showed negligible acceleration of corrosion. It merely is a simple way to emphasize the importance of the relative areas when you have galvanic couples. You must always avoid having a large area of the more noble metal and a small area of the less noble.

A lot of materials are subject to severe corrosion in crevices where oxygen cannot penetrate, such as under a washer. You can see the extent that corrosion occurred under that washer merely because of the exclusion of oxygen. In fields of this sort it is obviously necessary to avoid any design or installation where free access of oxygen to all of the surfaces is denied.

We have a laboratory in the building for the close examination and weighing of test pieces.

These are some more that suffered severe attack under crevices under the washers.

That balance is for weighing large specimens. It is very sensitive; it has a capacity of 10 kilograms and weighs to half a milligram. That means it weighs to about 1/50,000th of an ounce in 20 pounds.

This is apparatus we use in the study of the potential relationship among metals. You see the specimens form the walls of a channel and we let the water flow through these fixtures under control. We have a capacity of 22 of these units running full time, doing some fundamental work on the electro-chemical behavior of metals in seawater. To run that battery requires 300,000 gallons of water per day, which is one reason you must do this sort of research near the ocean.

As you can see, we are reasonably busy keeping track of all of the tests that are going on and digesting the data. The latter gets to be quite a problem sometimes.

The flow is controlled by letting the water discharge into these weir boxes which are fixed up with pump gages. For the electro-chemical measurements, we have fairly elaborate instruments and devices for doing what we must do.

I don't think there is any subject that more nonsense has been written about than electrolysis of sea water, and we are doing the best we can to bring a little order into the situation.

A lot of materials must resist attack by sea water at high velocities, so we have various devices for testing such effects. This one merely whirls a disc at 1,150 r. p. m.

We have another gadget which we use to squirt jets of water at test pieces through nozzles. That simulates the kind of attack that occurs at the entrance ends of condenser tubes and elbows, valves, and reducers in piping systems. It enables us to achieve severe conditions and hold them constantly. The flow of both water and air is controlled. There is a capacity of 24 jets in this device and they run day and night, too. He is just turning on the water. Ordinarily this net stays submerged. You can see what the action is. You can see what happens to the material when it is vulnerable to attack. If you leave the specimens in long enough you can actually perforate them, and then when they come out we have to know how deep the attack has been so we measure them by one means or another with a micrometer or a calibrated microscope.

That is a picture of Dr. William P. Clapp, who did all of the work on the marine biological end of this business. He died September 28 and his work is being carried on by his successor, Pete Richards.

I mentioned in my earlier remarks that we have facilities for atmospheric exposure tests of all sorts of metals, metallic coatings, paints, and so forth. There are now about 30,000 test cases in that lot. This particular lot is supposed to be about 800 feet from the ocean, and we have another one about half this size located about 80 feet from the ocean.

We can't say we are testing everything you might be interested in in this place, but there is a fair chance that we have at one time in our career tested most of them. If we haven't, you see we have a little room to spare.

You see a great difference in the behavior of materials. Those two shiny ones happen to be materials that are used for searchlight mirrors in naval services.

Here is a whole collection of topside paint that was put out for the Navy.

I just put that in to show you how different the colors of rust are in different steels. And this shows you how different the texture of the rust can be.

This is some more of the searchlight-mirror material. These specimens have been out 10 years now and they still do pretty well as mirrors without any polishing.

This is some work on insect screens which may be of interest to you. The feature of that is if you don't put that shelter over them they don't corrode nearly as fast. The worst condition of exposure on insect screens is under partial shelter. These are located only 80 feet from the ocean where they get a good deal of salt spray.

This is a scene taken with an underwater camera; I don't recommend this kind of photography with your own camera.

You see the ocean goes on continually and corrosion goes on continually and it looks as though our research on the subject will go on similarly.

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MR. TERWILLIGER. Ladies and gentlemen, that brings us to the close of the prepared program, but we have about a half hour left and I would like to turn the meeting over as an open forum for questions. If you have a question, please rise, give your name, affiliation, address, and the speaker to whom you are addressing your question. Mr. Scully.

My name is Frank P. Scully, Scully Signal Co., Cambridge, Mass. I think that a very serious step backwards occurred in the elimination of the former regulation that the fuel pipe of a gasoline tank should discharge at the bottom of the tank. In the first place, when you splash gas into a container you evaporate between a quarter and three-quarters of 1 percent. If you load the gas at the bottom of the tank and let it flow up you substantially eliminate that evaporation. No major oil company as long as it

owns the gas splashes it into a container. They couldn't stand the product loss that comes from splash filling. Secondly, if the fill pipe goes to the top of the tank the vapors come back. You want to have the vapors when you are filling a tank go outboard and not come in where people are sitting.

There is a terrific misconception among engineers that subsurface filling slows up filling. Actually it makes absolutely no difference provided that you have adequate venting.

MR. TERWILLIGER. Thank you, Mr. Scully.

As long as Mr. Scully has posed a problem, I want to assure him that it will be taken up at a meeting of the NFPA Motor Craft Committee.

I hope there are more questions.

MR. CHARLES A. CHANEY. I would like to inquire of Mr. LaQue as to whether some of his information is available for those interested in the particular type of work he is doing?

MR. LAQUE. The information we accumulate is made available in various ways. In some instances it is worthy of compilation in the form of a technical paper which may be presented before some appropriate group. However, a great number of these investigations are of a spot nature and the way we have to do with that, assuming they are not some secret Navy or Army tests, is simply to ask you to present us, as best you can, the details of your problem. We may have it in our hands and we can then search through all of the data we have accumulated and give you specifically our comments as to what ought to be done. That, perhaps, isn't too satisfactory, but actually, in the long run, it is the safest way to do it because the interpretation of data is equally as important as the nature of it, and any one particular test result, taken by itself, has always to be viewed against the background of accumulated information that bears on it. I think we can do all of you a lot better job by dealing with your problems as individual ones. As a matter of fact, I think I can say safely that there is no such thing as a general corrosion problem. Every corrosion problem I ever had to deal with has been a very specific one and ought to have specific treatment just the same as you go to a doctor: You don't read medical books when you have something ailing you.

MR. CHANEY. Thank you, Mr. LaQue.

MR. TERWILLIGER. May be a lot of people would like to have your address

MR. LAQUE. My address is simple enough, International Nickel Co., 67 Wall Street, New York City.

MR. TERWILLIGER. Do we have more questions?

MR. WILLIAM EDGAR JOHNS. I would like to ask Mr. LaQue if he would elaborate a little more on the electrolysis experiments and if there are any published papers available on that subject. I agree with you; what little data is available is very misleading and not very valuable.

MR. LAQUE. The subject of electrolysis or galvanic corrosion, or whatever you wish to call it, has been dealt with in many publications; I suspect that the bulk of them have been two extremes, the hyper-scientific ones which are difficult for the layman to interpret and the overly simplified ones which are generally wrong. I think there is a need for something in between.

We have published on our own account some discussions on the nature of galvanic corrosion, the factors that influence it, and the steps which should be taken to avoid difficulties from that source. Whether you have seen or read them I do not know, but if you will remind me I will send you what we already have in print.

I have written a paper on the subject, and if you will remind me, I will send you what I have.

The factors involved are very complex for all that the average man does to try to determine the direction of the galvanic effect. You can find lists of metals arranged in order with magnesium at one end and gold at the other and all of the others in between. They merely show you the direction of the action; they don't give you any notion of the intensity. The intensity is governed by such things as the relative areas or the resistances of the circuit and by another very elusive thing called the polarization of the metals. By that I mean the tendency for the potentials to approach each other as current flows. And that is where the complication develops. Knowledge of these polarization characteristics is missing and that is what we are running these 22 units day and night for, to discover what isn't known about the polarization characteristics of the metals.

Two or three years from now we will know a great deal more, I hope, than we do now. From developments of the last 6 months, I know we know less.

MR. JOHNS. Have you made any experiments as to the most satisfactory position for the zinc plates that we are now using in relation to the propeller and the major underwater copperbase metals?

MR. LAQUE. The theory of protection from the use of zinc or the general theory of the application of currents at one source to prevent corrosion at another one is based on the idea of raising the potential of the more noble metal of the couple. Let us say in this case the bronze propeller as compared with a steel shaft, you have to raise the potential of the bronze to that of the steel by allowing the currents to flow to the bronze. But that doesn't flow to the metal that needs protection. That you must bear in mind. The current must go to the metal that is causing the difficulty of a galvanic nature so that the ideal location of the source of that current should be as close as possible to where it should arrive. Therefore, the zinc, preferably, should be as close to the wheel as you can get it or whichever metal you have decided is the more noble of the two that you are concerned with. There has to be an electrical contact with it; there has to be a path where there is a flow of electrons in this galvanic circuit. It does no good at all to attach a piece of zinc to a wooden hull.

MR. SCULLY. It has to be a mechanical connection?

MR. LAQUE. It has to be a connection that will permit the flow of electrons. It has to be a conductor of the first class, an electronic conductor. It generally means a piece of metal.

MR. SCULLY. Placing a zinc collar on the shaft is much more satisfactory than just putting a thin plate on the hull.

MR. LAQUE. Bear in mind what I said: There must be electrical connection between the zinc and the metals and if, on the hull, there isn't such, then the zinc is only of psychological value to you.

I must say, in passing, that 90 percent of the zincs have only a psychological value.

FLOOR. Is it all right to have zinc touch the noble metal?

MR. LAQUE. Yes, perfectly all right.

FLOOR. You could put it right on the wheel?

MR. LAQUE. Yes. It would actually serve its purpose better there than on the shaft. That may sound strange but it is true.

You have to have so many milliamperes of current to accomplish your purpose and if the zinc is not able to generate that amount of current then it is not going to accomplish your purpose. So be generous in the dimensions of the zinc and be very careful with your electrical connections to it.

Mr. TERWILLIGER. Ladies and gentlemen, we are practically on time and if there are no more questions we will close the meeting.

Let me thank all of you for coming and particularly thank those who have contributed such an essential part.

Adjourned at 12:15 p. m.

SAFETY OF LIFE AT SEA CONVENTION OF 1948

CONVENTION RATIFIED

In the May 1951 issue of the "Proceedings of the Merchant Marine Council," a feature article was published on "Safety of Life at Sea Conventions." At that time not a sufficient number of countries which attended the 1948 convention as recognized signatories had deposited their acceptances in the archives of the British Foreign Office to make the convention effective.

It can now be announced that on the 19th of November 1951, 15 countries, 8 of which have more than 1,000,000 gross tons of shipping, had deposited their acceptances. Therefore, the 1948 convention for the Safety of Life at Sea will enter into force 12 months later, or November 19, 1952.

On November 19, acceptance of the 1948 convention had been received from the following nations on the dates shown :

Over 1,000,000 tons

United Kingdom and North Ireland	Sept. 30, 1949
United States of America	Jan. 5, 1950
France	Feb. 8, 1950
Netherlands	Apr. 18, 1950
Sweden	May 16, 1950
Norway	June 12, 1950
Denmark	Oct. 15, 1951
Italy	Nov. 19, 1951

Less than 1,000,000 gross tons

New Zealand	Dec. 29, 1949
Union of South Africa	Aug. 18, 1950
Iceland	Oct. 19, 1950
Portugal	Nov. 30, 1950
Canada	Feb. 1, 1951
Pakistan	Feb. 1, 1951
Yugoslavia	Nov. 13, 1951

In addition to the 15 nations listed, Belgium deposited its acceptance to the 1948 convention on December 5, 1951.

The 1929 convention is automatically replaced and abrogated between any two countries which have accepted the 1948 convention when the latter comes into operation for them. But the 1929 convention will continue, until 12 months after its denunciation, to regulate the position between a government which has accepted the 1948 convention and one which accepted the 1929 convention, but has not accepted the 1948 convention.

RADIO TRANSMITTERS FOR LIFEBOATS

The recent casualty involving the S. S. *Pennsylvania* has been cited as an example where portable lifeboat radio transmitters placed in the lifeboats might have materially assisted in locating the survivors. Some reports of the search for survivors of the S. S. *Pennsylvania* indicated that as many as three of the four lifeboats carried on that vessel were sighted and all were capsized. No survivors were found and there has been no trace of them since the last message from the vessel which stated that they were abandoning ship. Past experience shows that Coast Guard approved lifeboats, if successfully launched and clear of the ship, will stay upright in the water under most hazardous conditions and the records also indicate that there is an excellent chance that a rescue can be made. In recent years this situation has been further enhanced by the development of radar and coordidated search and rescue operations.

Because of the high seas and force of wind it appears the S. S. *Pennsylvania* must have broken up rapidly, and it can only be assumed that none of the lifeboats were effectively launched. While the Coast Guard considers the proposal of a transmitter for lifeboats as one having merit, under such circumstances that apparently existed on the S. S. *Pennsylvania*, a radio transmitter carried in the lifeboats would obviously have served no useful purpose.

The first official provision requiring a wireless-radio transmitter in lifeboats was in the 1929 Convention for Safety of Life at Sea which entered into force for the United States in 1936. It applied to passenger ships and the applicable rule pertaining thereto reads as follows:

> *Wireless telegraph installation.*—The wireless telegraph installation shall be of a type capable of transmitting clearly perceptible audible signals between lifeboat and vessel on the international calling and distress frequency, and a radio receiving equipment capable of satisfactorily receiving such signals. The range shall be not less than 50 nautical miles by day across the sea under normal conditions and circumstances. The power supply shall be capable of operating this equipment for a continuous period of at least 6 hours.

During World War II special "Wartime Safety Measures for the Merchant Marine" were required. Provisions were made for carrying additional lifesaving and other equipment to meet conditions arising from enemy attacks on ships and seamen. One of these regulations provided for the carrying of portable emergency radio transmitters on cargo ships and it read as follows:

> *Emergency radio installation.*—There shall be available and readily accessible (other than in a lifeboat) on board mechanically propelled vessels of over 1,000 gross tons for use in lifeboats at least one portable radio installation which complies with the requirements of the Federal Communications Commission or in lieu thereof there shall be located in at least one lifeboat on each side of the vessel at all times while at sea a radio installation (in portable form or permanently installed) which complies with the requirements of the Federal Communications Commission for this purpose. (46 CFR 153.23.)

A review of the records of casualties, sinkings and rescues as a result of enemy attacks on our ships during World War II credit instances where a few lives, of the thousands of seamen who abandoned ship, were saved through the use of the portable radio transmitter. The carrying of the portable transmitter actually proved to be of greater value as a builder of morale. In view of the record, the question of requiring the portable radio on cargo ships subsequent to cessation of hostilities was delayed pending consideration at an international convention. The holding of the convention and final adoption was delayed due to varying world conditions. However, the 1948 Convention for Safety of Life at Sea now contains a requirement for radio-wireless transmitters in lifeboats on passenger and cargo vessels which reads as follows:

CHAPTER III.—LIFE SAVING APPLIANCES, ETC.

PART A.—GENERAL

(Part A Applies to Both Passenger Ships and Cargo Ships)

REGULATION 13

Lifeboat Portable Radio Apparatus

(a) Ships carrying less than 20 lifeboats shall be provided with an approved portable radiotelegraph apparatus complying with the requirements set out in Regulation 14 of Chapter IV. All

this equipment shall be kept together in the chart room or other suitable place ready to be moved to one or other of the lifeboats in the event of an emergency.

(*b*) In the case of ships engaged on voyages of such duration that, in the opinion of the Administration, lifeboat portable radio apparatus is unnecessary, the Administration may allow such equipment to be dispensed with.

PART B.—PASSENGER SHIPS ONLY

(Part B Applies to Passenger Ships Only)

REGULATION 25

Radio Apparatus and Searchlights in Motor Lifeboats

(*a*) Every motor lifeboat of Class A, required to be carried in compliance with paragraphs (*a*) and (*b*) of Regulation 8, must be fitted with a radio-telegraph installation complying with the requirements set out in this Regulation and in Regulation 13 of Chapter IV, and also with a searchlight complying with paragraph (*f*) of this Regulation.

(*b*) The radio installation shall be installed in a cabin large enough to accommodate both the equipment and the person using it.

(*c*) The arrangements shall be such that the efficient operation of the transmitter and receiver shall not be interfered with by the engine while it is running, whether a battery is on charge or not.

(*d*) The radio battery shall not be used to supply power to any engine-starting motor or ignition system.

(*e*) The motor lifeboat engine shall be fitted with a dynamo for recharging the radio battery, and for other services.

(*f*) The searchlight shall include a lamp of at least 80 watts, an efficient reflector and a source of power which will give effective illumination of a light-coloured object having a width of about 60 feet (or 18 metres) at a distance of 200 yards (or 180 metres) for a total period of six hours and shall be capable of working for at least three hours continuously.

Point the nozzle of a steam hose toward the floor before you open the valve. Never open the valve when the nozzle is lying free on the floor.

CHAPTER IV.—RADIOTELEGRAPHY AND RADIOTELEPHONY

PART C.—TECHNICAL REQUIREMENTS

REGULATION 14

Lifeboat Portable Radio Apparatus

(*a*) The apparatus required by Regulation 13 of Chapter III shall be capable of transmitting and receiving on the radiotelegraph frequency assigned by the Radio Regulations for the purpose of distress in the medium frequency band. The transmitter shall be capable of using a class of emission assigned by the Radio Regulations for the purpose of distress in the medium frequency band and shall be modulated to a depth of at least 70 per cent. The receiver shall be capable of receiving the classes of emission assigned by the Radio Regulations for the purpose of distress in the medium frequency band. In new equipment the apparatus shall also be capable of transmitting on the high frequency and the class of emission prescribed for survival craft by the Radio Regulations. An Administration may delay the application of the requirement for high frequency in the case of new equipment for a period not exceeding one year from the date of coming into force of the present Convention.

(*b*) The apparatus shall be so designed that it may be used in an emergency by an unskilled person. The transmitter shall be fitted with an automatic keying device for the transmission of the alarm signal and the distress signal, as well as a key for manual transmissions. An Administration may delay the application of the requirement for an automatic keying device in the case of new equipment for a period not exceeding one year from the date of coming into force of the present Convention, and in the case of existing equipment for a period not exceeding three years from the date of coming into force of the present Convention.

(*c*) In new equipment, the note frequency shall be between 450 and 1350 cycles per second.

(*d*) The apparatus shall be readily portable, watertight and capable of floating in sea water and also capable of being dropped into the sea without damage.

(*e*) The transmitter shall have at least 10 watts input to the anode of the final stage, and shall preferably derive its power from a hand generator. If operated from batteries these shall comply with conditions laid down by the Administration to ensure that the batteries are of a durable type and are of sufficient capacity.

(*f*) An aerial shall be included, either self-supporting or capable of being supported by the mast of the lifeboat at the maximum practicable height.

(*g*) At sea a qualified operator shall, at weekly intervals, bring the battery up to full charge if the battery is of a type which requires charging and in any case shall test the transmitter, using a suitable artificial aerial.

(*h*) For the purpose of this Regulation, new equipment means equipment supplied to a ship after the present Convention comes into force.

The United States Senate having ratified the 1948 Convention makes this country a signatory to the Convention provisions that will enter into force on November 19, 1952. The Coast Guard will then require lifeboat transmitters on cargo ships.

MERCHANT SEAMEN TO BE REQUIRED TO UNDERSTAND THE ENGLISH LANGUAGE

The present Coast Guard "Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel" require that officers, and seamen in qualified ratings, such as able seamen, qualified members of the engine department, and the like, must be able to pass the necessary qualifying examinations and tests conducted by the Coast Guard in the English language.

A bill has been introduced in Congress (S. 2450, 82d Cong., 2d sess.) by Hon. Edwin C. Johnson, Senator from Colorado, which has the effect that on and after the date of passage of this bill that all merchant seamen before being issued seamen's papers must be able to understand orders given in the English language.

This is considered to be good legislation. The marine section of the National Safety Council has backed this proposed legislation in the interests of promoting safety in the manning of American vessels. Misunderstood orders on the part of operating personnel have resulted in disabling and fatal casualties.

The bill, as introduced, reads as follows:

A BILL To amend section 13 of the Act of March 4, 1915 (38 Stat. 1169), as amended (U. S. C., title 46, sec. 672 (a)), to require that merchant seamen be able to understand orders given in the English language, and for other purposes.

Be it enacted by the Senate and House of

006779—52——3

Representatives of the United States of America in Congress assembled, That the first sentence of section 13 of an Act entitled "An Act to promote the welfare of American seamen in the merchant marine of the United States; to abolish arrest and imprisonment as a penalty for desertion and to secure the abrogation of treaty provisions in relation thereto; and to promote safety at sea", approved March 4, 1915 (38 Stat. 1169), as amended (U. S. C., title 46, sec. 672 (a)) is amended to read as follows:

"No merchant vessel of the United States of one hundred tons gross and upward, except those navigating rivers exclusively and the smaller inland lakes and except as provided in section 1 of this Act, shall be permitted to depart from any port of the United States: (a) Unless she has on board a crew not less than 75 per centum of which, in each department thereof, are able to understand any order given by the officers of such vessel; (b) unless, if such vessel carries passengers for hire, she has on board a crew all of whom are able to understand any order, written or oral, given by the officers of such vessel in the English language; nor (c) unless 65 per centum of her deck crew, exclusive of licensed officers and apprentices, are of a rating not less than able seaman."

SEC. 2. Following the first proviso of subsection (g) of section 13 of said Act a new proviso reading as follows is inserted: "*Provided further*, That such certificates shall not issue before the applicant therefor has demonstrated to the satisfaction of the issuing officer that he has sufficient knowledge of the English language, written and spoken, adequately to perform all duties required of him by law and to carry out the lawful orders of his superior officers on shipboard."

SEC. 3. Section 1 of this Act shall become effective on the first day of the seventh full calendar month following the enactment of this Act. Section 2 shall become effective on the day following enactment of this Act.

PREVENTION OF EXPLOSION AND FIRE ON MOTORBOATS

Explosions on gasoline boats involving loss of life and heavy loss of property have rendered it necessary to take some action in regard to their prevention.

Three things are vital to this—

First, that not a drop of gasoline or any gasoline vapor be allowed to get into the hull outside of tanks, engines, and connections.

Gasoline vapor is heavier than air and even in filling a tank on deck, the vapor will flow down any open hatch or companionway and sink to the floor and bilge and remain there unless removed.

Second, that no spark or flame, including oil lanterns, be allowed in engine room that can be avoided.

Third, that all engine compartments be so ventilated that all vapors or gases which may have gathered there be quickly removed.

After examination of many boats and doing everything possible to avoid unnecessary expense, the matter was taken up with The National Board of Fire Underwriters and the following have been considered necessary by their engineers:

That all filling pipes to gasoline tanks must be on outer deck, outside of cockpit and coamings, so that any overflow will run overboard, and that filling pipes run to the bottom of tank.

That all vent pipes to gasoline tanks should lead to outside of hull.

That all tanks should have an indicating device, but such device shall not consist of glass gages other than those of bull's-eye type, nor of petcocks.

That all outlets for drawing gasoline for any purpose whatsoever be prohibited in engine room.

That all carburetors should have Underwriters' Laboratories approved backfire flame deflectors, to prevent explosion from backfire.

That all switches and fuses be placed outside of engine compartment. On large boats where it is desired to have all equipment in the engine room, switches and fuses and other spark-emitting devices should be enclosed and located at least 4 feet above the floor.

That all electric light and auxiliary plant tanks have filling pipes run to outer deck same as main tanks, or engines piped directly to main gasoline tanks. Air-cooled motors under deck are not approved.

That drip collectors be well fastened under all carburetors. Openings should be properly screened with 40-mesh brass. Carburetors of the upturned horn type similar to the Zenith or Stromberg, with closed drip pan connected to the lowest point of air horn are recommended. A venturi pipe should lead from the bottom of all drip pans to the manifold, so as to keep these pans, as nearly as possible, free from gasoline at all times.

That there be a cut-off valve at each tank to be operated from the deck, with another valve at each carburetor.

That 3-inch or larger ventilating pipes running down all the way to bilges be placed in all four corners of engine room, so as to induce a thorough scouring draft through bilges and remove any explosive gases that might lie there.

These should be made so that they CANNOT be closed—the little water that would enter in a heavy sea would be negligible in comparison with the danger of confined gasoline vapors.

At least one of these pipes should be provided with an electric fan to remove gases from the bilges. If suction fan is used, motor must be of explosion-proof type or located outside of vent duct. These fans should be run for at least 10 minutes before starting and after shutting down engine. Where boats are so small as to make the electric fans impracticable, the same pipes should be installed with the fans omitted.

NO VENTILATION ABOVE, EITHER AT DECK OR SIDES, WILL REMOVE THESE VAPORS

In still smaller boats already built, where the installation of the above ventilating pipes is impossible, an opening of not less than 36 square inches should be cut close down to the cabin floor in both forward and after partitions of engine room to induce a draught, so that the heavy vapors that lie in the bilges may be forced out. A ventilating cowl or port both in the forward and after ends of the boat should always be open, so that a draught be made through the openings in the fore and aft engine compartment partitions.

Gasoline shall not be used for wiping down engines, or machinery, or cleaning hands.

Gasoline stoves or lamps shall never be used on boats.

PREVENTION OF EXPLOSION IN FILLING GASOLINE TANKS ON YACHTS

The large number of explosions that have occurred during the last few years on gasoline-powered boats just after filling tanks, involve not only a heavy monetary loss but also many lives.

To stop these explosions, it is strongly recommended that before tanks are opened or gasoline brought on board:

All engines, motors, fans and other spark-producing devices be shut down;

That all galley fires be put out;

That all ports, windows, doors, and hatches be closed;

That no smoking be permitted while filling;

That in filling tanks no gasoline whatsoever (not one drop) be allowed to get below deck except into tanks—neglect of this has cost many lives;

Fill with hose—keep nozzle in contact with fill pipe. If cans must be used, see that there is a metal-to-metal contact between cans, funnels, and fill pipes. Static electric sparks may occur in filling operations if this is not done;

Grounding nozzle of hose or can is necessary if all explosions are to be prevented;

In filling gasoline tanks, etc., allow 1 percent of cubic air space for each

15° Fahrenheit for expansion. Viz: 90° would need 6 percent of air space, 130° would need 8.66 percent, or approximately 9 percent;

That after filling hose and/or cans have been removed from boat, any spillage on deck be wiped up and all ports, windows, doors, and hatches be opened and kept open if possible for at least 5 minutes before any fan, motor, or engine is started or stove lighted;

Approved type carbon-dioxide or automatic carbon-tetrachloride extinguishers recommended.

BILGE VENTILATION

Vitally Important

Losses having occurred recently from inadequate bilge ventilation, that is, the use of 3-inch or smaller ventilating pipes in boats where from their size, much larger pipes should have been used under The National Board of Fire Underwriters' Regulations of October 7, 1929, the matter was taken up after careful consideration, the table given below was drawn up as the minimum requirements of sizes which might be used.

Boat (length in feet)	Ventilating pipes (two forward and two aft in engine room, piped to bilges)
	Inch
20 and under	3
25	3½
30	4
35	4½
45	5
50	5½
60	6

As a large proportion of losses occur while the boat is at rest and not under way, and as many boats lie at piers or floats and so are often stern to the wind, it follows that to give good ventilation to the bilge at all times, the after ventilators must be fully equal in size to the forward ones.

Experience has proved that these ventilating pipes have been one of the greatest factors in preventing losses, and it follows that the more natural draft ventilation given, i. e., the larger the ventilating pipes, the safer the boat.

Further, that all stoves be well fastened down and thoroughly insulated, and where alcohol, kerosene, or fuel oil is used, especially in wet priming, a catch pan not less than ¾ inch deep shall be secured inside the frame of the stove. Where liquefied or compressed gas is used for cooking, tanks must be placed on deck.

That all pipes penetrating hull under water should be fitted with seacocks.

That there be a hand bilge pump large enough to take care of a heavy leak, permanently installed.

That all electric batteries be well secured and located in a well-ventilated space and be provided with a protective screen to prevent any metal object being dropped on them.

That there be at least two anchors with 120 feet of cable for each, capable of holding the boat in a heavy gale, one of which should have cable bent on at all times.

That bilges should be kept clean—free from oil and gasoline at all times—neglect of this has cost many lives.

The majority of losses are caused by carelessness. Good housekeeping tends to safety.

Further regulations covering tanks, fuel lines, carburetors, motor exhaust, galleys, diesel installations, and many other items are contained in the National Fire Protection Association Regulations for Motor Craft which will be sent to you upon request to the Yacht Safety Bureau, room 1708, 21 West Street, New York 6, N. Y.

—Courtesy Pacific Motorboat, May 1951.

A MESSAGE TO THE MOTORBOAT OPERATOR AND OWNER

There have been many tragedies and disasters in the annals of small craft boating recorded by the Coast Guard where the investigation reports show: "This accident would not have occurred IF * * *." or would not have been serious IF * * *."

The "Proceedings" has excerpted and condensed a few of the recommendations which it is hoped will be helpful to the motorboating public.

Petroleum vapors are heavier than air and consequently accumulate in the lowest part of the spaces containing them, where, being below head level, they are not readily detected by sense of smell and are unsuspected. Such accumulated vapors may lie dormant in the lower part of an engine-room space for a considerable length of time without mishap; however, should a source of vapor ignition be introduced, such as an open flame, a lighted cigarette, an electric spark, etc., a disastrous explosion may result. Hence, it is imperative to prevent the accumulation of explosive mixtures, first by keeping gasoline out of the bilges,[1] and second, by providing adequate means for ventilating such spaces. It is also necessary to eliminate all sources of vapor ignition from spaces containing explosive mixtures. Consideration should be given to the elimination of all unnecessary pockets in the hull where oil or petroleum vapors may accumulate. Attention is invited to the sketches showing recommended methods of arranging fuel-tank vents and fill pipes.

The electric installation should be in keeping with the best modern safety practices, as many disastrous fires and explosions resulting in loss of life can be directly traced to defective wiring or other electrical euipment.

Motorcraft owners should familiarize themselves with the regulations and customs of navigation, particularly when long cruises are contemplated. They should acuire a knowledge of subjects vital to successful operation, such as reading a barometer, right-of-way, whistle signals, running lights, buoys, reefs, and other obstacles recorded on charts of the waters navigated.

On long cruises the vessel should be provided with proper charts, a pair of compasses and a parallel rule. It is also necessary to have a properly adjusted compass. The compass should be checked on steel vessels at least once a year and on wooden vessels every 2 or 3 years. If engines, fuel tanks or other substantial metallic objects are changed, the compass should be checked after replacement is accomplished.

A propulsion unit which is of such power as to be unsuited to the hull model and displacement, should not be installed. A responsible designer or builder should be consulted to avoid overpowering the vessel.

A first-aid kit should also be carried.

All boats should be provided with and carry on board at least one anchor of sufficient weight, together with an anchor cable of suitable character and strength to hold the boat under adverse wind and weather conditions. In general, cables should be of such length as to allow the boat to ride at anchor on a length of cable about 6 times the depth of the water which it may be necessary to anchor in. If the ground is such that the holding power is poor, a greater scope

[1] A half pint of gasoline in the bilge may create a potential explosive power of 5 pounds of dynamite.

of cable may be necessary to prevent the boat from dragging her anchor. The longer the cable the greater the holding power. It is recommended that serious consideration be given to providing on board a second anchor and cable as a spare. Anchors and cables should be stowed in readily accessible locations in order that the boat may be quickly anchored in time of emergency, such as an engine breakdown on the lee shore or in heavy traffic. Motorboatmen on the coast are advised to familiarize themselves with the principles of the "sea anchor" or drag, as it may be used to keep the boat head to in heavy sea when anchoring may be impossible.

Permanent moorings should be of ample weight, not less than twice that of the boat's bower anchor and more if scope is restricted by local conditions, to less than 5 depths at mean high water. Chain cable from mooring to buoy should be used and pennant from buoy to bitt should be a size larger than boat's anchor line or equivalent and parceled in way of the leader check to reduce chafing. Pennants should be examined periodically proved in fit condition to withstand usual late season storms or renewed.

Lifesaving equipment should be given proper care in order to prolong its life and assure its efficiency in time of need. Buoyant cushions should not be tossed around or otherwise roughly treated. Lifesaving equipment should be kept in a dry, well-ventilated place when the boat is not in use. Kapok-filled cushions and life preservers will absorb moisture, and should be thoroughly dried in the sun as frequently as possible. Their efficiency is greatly decreased if compressed when wet.

Sea connections below the water line should have valves or cocks on or as near as possible to the inside of the hull planking or plating. Condition of nipples and locknuts or flanges and bolting should be proven before putting boat over each season. Inside hose, clamped on a nipple without a valve or cock at the hull, should not be used.

A reliable hand-operated bilge pump of sufficient size to take care of a serious leak should be provided.

The hull should be thoroughly examined internally and externally. If of metal, it should be hammer-tested and any badly deteriorated plates, frames or rivets, etc., should be replaced. If the hull is of wood, the seams should be thoroughly searched and calked, if necessary, particular attention being paid to the garboard strake. Calking should be done only after the planking is soaked. Dry calking may result in permanent injury to the planking and fastenings. The fastenings should also be thoroughly examined to see that they are in good order. All ports and other openings in the vessel's hull should be gone over to see that they are properly gasketed and should be hose-tested for tightness.

A clean vessel, inside and outside, plus proper ventilation between frames and dead air spots preserves the finish and tends to prevent the wood from rotting. The bilges can be made sweet and clean by using a strong solution of washing soda or other similar compound after which they should be thoroughly flushed with water.

All underwater fittings, such as stuffing boxes, overboard discharges, seacocks, and toilet discharges should be thoroughly examined and any worn or deteriorated parts or fixtures should be renewed. The stuffing box around the propeller shaft should be repacked. The propeller shafting should be examined for defects and excessive wear and checked for alignment. The propeller should also be carefully examined and the edges of the blades faired or dressed as the case may be.

DO YOU KNOW THE ANSWERS TO THESE QUESTIONS?

What is the meaning of two short blasts of the whistle?

What signal would you display while at anchor during the night?

What is the rule concerning speed during foggy weather?

Suppose you see a red light on your starboard bow, what would you judge it to be and what would you do?

In keeping clear of another vessel what must you avoid doing?

What motorboats are included in class 2?

What person must hold a motorboat operator's license? Under what conditions would a license as operator of a motorboat be subject to suspension or revocation?

Explain how a life preserver is worn and how it is adjusted.

Must fire extinguishers used on motorboats be approved?

Outline briefly the features of the fixed CO_2 system. What boats are required to be equipped with it?

What precaution would you take in regard to the bilges of the engine and fuel tank compartments of motorboats (except open boats) using as fuel any liquid of a volatile nature?

What should you do after refueling?

What precautions do you take with oily rags and waste?

What would you watch out for in regard to wiring?

When passengers are aboard, how must you handle your motorboat with regard to their safety?

Suppose a person falls overboard and is recovered in an unconscious state, how would you go about reviving him?

You are anchored in a fairway in a fog. What signals must you give and how often?

What is the meaning of one short blast on the whistle?

You are navigating in foggy weather. What signals must you give? What duration and at what intervals?

Suppose you see a red pennant displayed from a Coast Guard station, or a lighthouse, or yacht club, what would it mean to you?

In narrow channels, on which side shall vessels navigate, if safe and practicable?

What does the word "Motorboat" include according to the Motorboat Regulations?

Describe the lights carried on class 3 motorboats.

What would you look for before purchasing a life preserver?

What type, size and number of fire extinguishers are accepted for use on motorboats? How are they operated?

If gasoline is spilled, what immediate steps should be taken?

What safety measures must be observed when refueling?

Before starting an engine, which is located in a cabin or other enclosed space, what would you do first?

Where should the vent from the gasoline tank terminate?

What precaution must be taken to prevent back-fire of the engines (except outboard motor) of motorboats, the construction of which, or the replacement of the engines of which was commenced subsequent to April 25, 1940?

When carrying passengers for hire, what provision must be made for one's safety?

Name the points of the compass.

NOTE.—Sample questions given to applicants for motorboat operator's license. Reprinted from the Coast Guard pamphlet entitled, "Motorboat Regulations."

FUEL TANK FILLING INSTRUCTIONS

Fuel tanks should be properly installed and vented. Fueling should be completed before dark except in emergencies. Whenever a boat is moored at a service station for fueling:

Do not smoke, strike matches, or throw switches.

Stop all engines, motors, fans, and devices liable to produce sparks.

Put out all lights and galley fires.

Before starting to fuel:

- See that boat is moored securely.
- Close all ports, windows, doors and hatches.
- Ascertain definitely how much additional fuel the tanks will hold.

During fueling:

- Keep nozzle of hose, or can, in contact with fill opening to guard against possible static spark.
- See that no fuel spills get into hull or bilges.

After fueling is completed:

- Close fill openings.
- Wipe up ALL spilled fuel.
- Open all ports, windows, doors and hatches.
- Permit boat to ventilate for at least 5 minutes.
- See that there is no odor of gasoline in the engine room or below decks before starting machinery or lighting fire.
- Be prepared to cast off moorings as soon as engine starts.

MAKE THEM SAFE

Every department has some use for empty cans. Many of these uses are such that the purchase of a special receptacle would be entirely unjustified.

A good case can be made out for opening all cans with an opener which leaves a rolled edge all the way around, even if the can is only to be emptied and discarded. Certainly, any can which is to be used again should have no sharp edges or points. Perhaps in some cases these are left by tearing off a top which had not been completely cut loose when it was first opened.

Cut fingers, which may become seriously infected, can be avoided by seeing that all cans are opened completely and with rolled edges the first time. Cans which are opened with a key have a sharp edge and should be discarded at once.

If these practices are followed, any can a man finds will be safe to use.

(Seamen's Safety Guide, August 1951, Accident Prevention Bureau of Pacific Maritime Association, San Francisco, Calif.)

In the Northern Hemisphere, the right-hand semicircle of a tropical nurricane is more dangerous than the left-hand semicircle because the forward motion of the storm is added to the rotating winds. Wind velocity in this area, therefore, may run 20 to 40 miles an hour greater than in other areas of the storm.

A leading light is a light so located that vessels may steer directly for it until close aboard, when a new course is taken.

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 ending December 31, 1951.

Coast Guard District	Customs port		Total
1 (Boston)	(4) Boston	16,823	
	(1) Portland, Maine	11,671	
	(2) St. Albans	2,933	
	(5) Providence	4,727	
			36,154
2 (St. Louis)	(45) St. Louis	17,317	
	(12) Pittsburgh	2,511	
	(34) Pembina	91	
	(35) Minneapolis	6,534	
	(40) Indianapolis	4,385	
	(42) Louisville	4,009	
	(43) Memphis (part)	8,144	
	(46) Omaha (part)	503	
	(47) Denver	6	
			43,500
3 (New York)	(10) New York	49,494	
	(6) Bridgeport	9,291	
	(11) Philadelphia	21,135	
			79,920
5 (Norfolk)	(14) Norfolk	16,626	
	(13) Baltimore	23,890	
	(15) Wilmington, N. C.	8,799	
			49,315
7 (Miami)	(18) Tampa (part)	23,553	
	(16) Charleston	1,989	
	(17) Savannah	3,394	
	(49) San Juan	478	
	(51) St. Thomas	96	
			29,510
8 (New Orleans)	(20) New Orleans	20,465	
	(18) Tampa (part)	786	
	(19) Mobile	8,401	
	(21) Port Arthur	4,065	
	(22) Galveston	10,931	
	(23) Laredo	2,150	
	(24) El Paso	5	
	(43) Memphis (part)	76	
			46,879
9 (Cleveland)	(41) Cleveland	14,498	
	(7) Ogdensburg	6,516	
	(8) Rochester	8,897	
	(9) Buffalo	8,354	
	(36) Duluth	4,243	
	(37) Milwaukee	12,629	
	(38) Detroit	29,652	
	(39) Chicago	8,724	
			93,513
11 (Long Beach)	(27) Los Angeles	9,294	
	(25) San Diego	1,791	
	(26) Nogales	110	
			11,195
12 (San Francisco)	(28) San Francisco	20,901	
			20,901
13 (Seattle)	(30) Seattle	15,917	
	(29) Portland, Oreg.	8,177	
	(33) Great Falls	1,060	
			25,154
14 (Honolulu)	(32) Honolulu	3,624	
			3,624
17 (Juneau)	(31) Juneau	7,145	
			7,145
Grand total			446,770

NEGLECTED WIRES CAUSE MOTORBOAT FIRES

LESSONS FROM TRAGEDIES

DEATH STRUCK 45 Times

A motor vessel *Pelican* was built in 1940 for service as a passenger-carrying vessel in the fishing and recreation business. She was fitted with two gasoline engines for propulsive purposes, and admeasured 14 gross tons. The *Pelican*, admeasuring less than 15 gross tons, was not subject to Federal inspection and certification statutes for seaworthy purposes and could legally operate in the passenger-carrying business with no effective legal supervision with respect to any safety standard for the safety of the public patronizing such vessel.

On the morning of September 1, 1951, the *Pelican* was moored to a pier at Montauk, Long Island, where in addition to the 2 crew members she embarked 62 passengers for a fishing excursion. Existing weather conditions were favorable; however, warnings had been issued indicating expected strong winds and stormy weather. The *Pelican* had on board 64 persons, although a boat of her dimensions and type could not ordinarily be expected to carry more than about 30 persons with safety on coastwise waters in the service in which she was engaged. Despite the impending bad weather warnings and her overloaded condition, the *Pelican* departed for a fishing excursion. It arrived at a spot known as Frisbie's Bank at about 10 a'clock while the wind had been gradually increasing in intensity and veering around to the east and northeast. After fishing for approximately 1 hour, the *Pelican*, due to the worsening weather conditions, was headed for port. On the return trip, engine difficulties were experienced and only 6 miles were covered in 2½ hours. As the *Pelican* rounded Montauk Point she changed course, bringing the wind and sea on the starboard beam and quarter, causing her to roll heavily to port, at times rolling her port gunwale under water. Two successive heavy seas hit the vessel, evidently on her starboard quarter, and caused her to capsize 1 mile north of Montauk lighthouse.

Due to the suddenness of the capsizing and the lack of apprehension on the part of the passengers that the vessel was in any particular peril, life preservers were not worn, although there was an adequate number of accessible good, serviceable lifejackets on board. Due to the rough seas and the fact that no life preservers were worn, 45 persons perished, probably from exhaustion, within 30 minutes after the capsizing; 18 survivors were picked up by 2 Coast Guard Auxiliary manned vessels, and 1 by a Coast Guard picketboat. Several bodies were found in the enclosed cabin of the *Pelican* after it was towed into Montauk Harbor.

It was determined that the primary cause of this tragedy was the overloaded condition of the *Pelican*. And here a paradox exists immediately evident to those familiar with Coast Guard inspection regulations: that the number of passengers carried on larger and presumably more capable vessels is restricted whereas there is no restriction on the number that may be carried by smaller and presumably less capable vessels. It follows then, that legislation is required which would subject small motor vessels carrying passengers for hire to annual inspection for the purpose of determining that they may be operated in their proposed service with safety of life. In this connection, legislation has been sponsored requiring the annual inspection and certification of all motor-passenger vessels regardless of size, tonnage, or waters operated, which carry more than 12 passengers for hire.

The wind and sea conditions contributed to the casualty, but probably would have had no effect had not the primary cause—overloading—existed. Another contributing condition was the erratic performance of one of the vessel's engines. From the fishing bank to the scene of the capsizing the *Pelican* averaged just a little better than 2 knots, taking 2½ hours, while the whole distance from the dock to the banks seldom took over an hour and a half. With the loss of the use of one engine, maneuverability of the boat, especially in its overloaded condition, would be lessened if not lost altogether, leaving it to the mercy of the seas. Poor distribution of the passengers, who would, not thinking of the consequences, seek the side away from the sea, resulted in an unbalance making the vessel quite susceptible to the turning moment exerted by the two successive larger waves.

All things considered, there was shown a poor exhibition of seamanship and lack of responsibility in the persons entrusted with the safety of 62 passengers.

ROTTED HULL CAUSES LOSS OF LIFE

The casualty which follows is an excellent example of that type of casualty which may be prevented or controlled through close cooperation between motorboat owners and boat-repair yard operators. Told in the simplest terms, an uninspected motor-passenger boat departed at 8 o'clock one morning last summer carrying the owner-operator and 13 passengers into a sound for a day's fishing. In the afternoon, as the weather forecast predicted, the wind increased and was accompanied by high seas. On the return trip, the motorboat pounded several times and a hole was opened up forward. The boat quickly sank and, although all persons were supplied with good life preservers, due to breaking seas and exposure, all but three succumbed before help arrived.

The boat was a gasoline-propelled vessel of 9 gross tons, built in 1912 as a trawler. It was 33 feet long, 11½ feet in beam, of wooden construction. It was purchased by the present owner in June 1950, at which time it was hauled out and perfunctorily examined by him. On the 15th of July 1950, it was taken out of the water for the purpose of locating and repairing a leak. In the temporary absence of the boatyard operator, an employee attempted to stop the leakage by repacking the stuffing box and at the same time tried to pull some of the planks back that were started off forward. Since excessive leakage did not subside, the boat was again placed on the ways 3 days later, and the owner of the boatyard made an inspection of the under part of the hull. He found that five or six planks on each side, forward, had started off, some of them at least half their thickness. He described very clearly the appearance of this part of the underwater body by saying, "it looked as if she were clapboard, just like the side of a house"—although it was not a clinker-built boat. The boatyard owner found the boat generally in poor condition, rough and poorly fastened. Extensive repairs were indicated, but it was apparent that the boat's owner did not anticipate investing in a major repair job. The boat's owner was advised of the condition and replied that he would fix her himself. His work consisted of indiscriminate caulking, use of putty

MOTORBOAT CASUALTIES OF 1951

and sheet lead to hold the caulking in the seams. It is worthy of note that the boatyard owner declined to do any work in the nature of a stopgap.

The boat was operated as an "open party fishing boat" until the last of August 1950, at which time it was hauled and the bottom painted. In September it was stored in the open at a boatyard for the winter. For 2 weeks prior to its being placed in the water in May 1951, the owner readied it for the season by scraping and painting; caulking cotton and seam compound were used on the bottom of the hull. It is significant that since the time of its purchase no inspection of the hull was made by a person competent to evaluate its seaworthiness with the exception of the examination by the boatyard operator when adverse criticism was given.

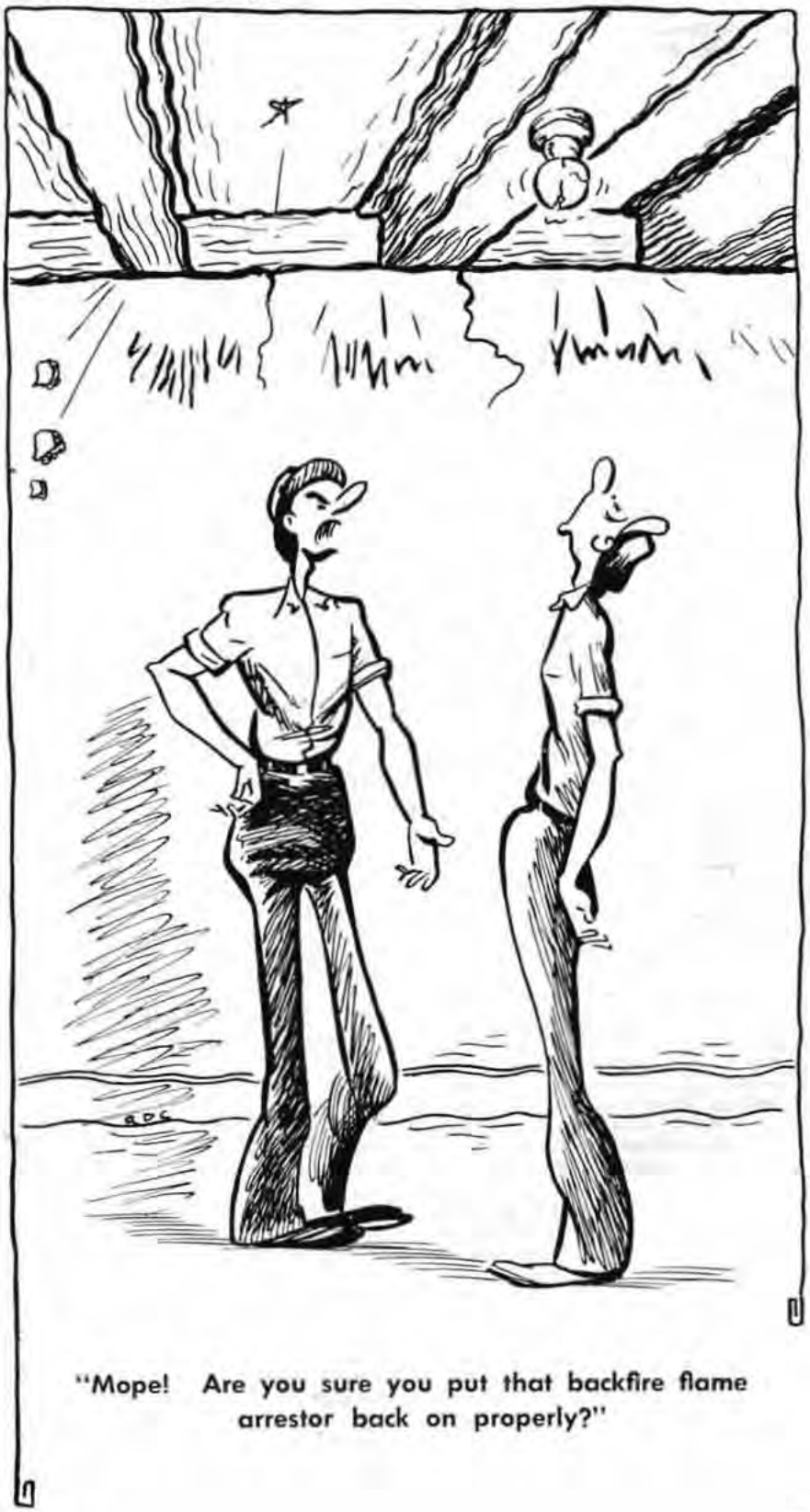
A hole, well forward on the port side, 2 x 2½ feet was discovered on the fateful day in June 1951, after the operator's attention was directed by one of the passengers to the water rising in the cabin. The water commenced to rise after the vessel had pounded several times in the heavy seas. Despite the age of the motor passenger boat during the period of more than a year which the present owner possessed it, he invested relatively little material and labor in the upkeep of the vessel. Caulking constituted the principal effort to maintain the vessel's watertight integrity. He completely neglected to follow the stern warning of the rotted-out fastenings on the metal guard of the stern and the inability of long screws to draw the planks into the ribs. All evidence points to a serious failure of the retentive power of the wooden skeletal structure of the boat due to dry rot. The poor seaworthy condition of this boat was made even more apparent when lead plates were used to hold the caulking cotton in place.

It was the conclusion of the board which investigated this casualty that with the hull in poor condition, the force of the seas further weakened the vessel so that upon its return trip, a series of five or six poundings was sufficient to cause a portion of the planking to let go. As a result, water entered far more rapidly than the power of the pumping system could dispose of it.

Although the cost of repairing this boat in making it seaworthy would have been great, it is the duty and responsibility of the owner when his boat is carrying passengers to provide for its complete seaworthiness.

Oilers should wear tight-fitting clothing—no long neckties, gloves, or loose or unbuttoned sleeves.

MOPE AND DOPE



"Mope! Are you sure you put that backfire flame arrestor back on properly?"

GOOD ADVICE—UNHEEDED

The following case will serve to illustrate the damage that can be done by an uninformed backyard boat builder, the self-styled expert on small boats, who very often is entrusted with the safety of others, equally uninformed. In the present instance, however, it was one of the passengers who exhibited presence of mind and initiative in the emergency that should have been borne by the owner-master. It will also show how a succession of adverse conditions can combine and ultimately result in disaster.

An uninspected motorboat of approximately 14 tons was licensed for mackerel fishing. For this endeavor its crew was not required to be licensed or certificated by the Coast Guard. The craft was built in 1944 for the U. S. Navy as an LCVP, or small landing craft. Prior to documentation the character of the vessel had been altered by the addition of a conventional bow with raked stem; the cockpit was decked over, a pilothouse was added above the new main deck, port holes, two on each side, were installed in the hull in way of the engine space, and a watertight bulkhead was installed between the engine space and the forward cabin. There were two port holes in the forward cabin.

The vessel was equipped with a 250-horsepower gasoline engine, a 3-horsepower auxiliary driving a generator and connected to a pump which circulated water in the bait tank. This pump could also be lined up to the bilges. The bait tank, at 300 gallons capacity, was located on the main deck over the hatch to the engine space. The vessel was equipped with a two-way radiotelephone. Most of the work of conversion was done by the then co-owners, one of whom was a carpenter. Both of the owners belonged to that fabulous order of practical seafaring men known as those who have "worked around boats all their lives." The carpenter relinquished his share in the boat the season before it suffered this casualty.

At about 5 o'clock in the morning a party of 18 men, all employees of a steel company, boarded the motorboat at a dock for a fishing trip. Arrangements for the trip had been made by a member of the party who considered himself a good friend of the owner-master. The stipulated fee of $100 was prorated among the members of the group. It may also be mentioned that at 5 o'clock the vessel sailed in violation of its Custom's license and that the operator violated the Motorboat Act by carrying passengers for hire without holding a Coast Guard license for such service.

The party fished at various points off the southeast end of an island from 8 until 3 p. m. At this time it was discovered that the water in the bait tank was low and upon examination it was found that a hose coupling in the circulating line to the bait tank had come apart, and water from the tank had drained out, part of it through an overboard drain, the rest of it into the bilge of the engine compartment. The bait tank circulating pump, which takes its suction from the sea, continued to operate until the discovery and had, undoubtedly, pumped many gallons of water into the vessel. The main engine-connected bilge pump was lined up to pump the bilges but was found to be inoperative, so the circulating pump was disconnected and used to pump the water out of the bilge.

With the utility of the bait tank lost, it was decided by the party to return to Long Beach. The vessel got under way and headed back at a speed of about 11 knots. The weather at this time was clear and calm with a light northwesterly breeze and unlimited visibility. About a half hour later, when the vessel passed out of the lee of the island, the wind increased from the northwest and the seas and swells became heavier causing the motorboat to assume a starboard list of from 10° to 15°. Spray broke across the deck over the port side. Speed was decreased, passengers distributed in an attempt to correct the list. Some of the passengers in the forward cabin returned to the weather deck because water was seeping through the overhead deck planking.

Shortly after this, one of the passengers, the organizer of the fishing party, opened the hatch to the engine room and found the water 6 to 8 inches higher than it was after the original trouble. He notified the operator who directed his crew member to check the bilge pump. The pump was not taking suction. This passenger thereupon suggested that the operator either return to the island or radio for assistance, but was confronted with apathy and lack of concern on the part of the operator and the crew member. This was evidenced by their remarks, such as, "We're about half way; wouldn't be to no advantage to turn back," and "It's a good boat, it won't sink." He spent 10 or 15 minutes trying to talk the operator into calling the Coast Guard when the motor died. It was started up again but immediately stopped. The operator then called the Coast Guard and gave his position.

Upon further examination, the portholes in the engine space were found open. With each wave, water literally poured into the boat and at this time, due to the amount of water in the engine space and lack of room, it was impossible to close the ports. As the vessel further settled, water entered through the hatch into the forward cabin. The operator then called the Coast Guard and said his boat was being abandoned. It sank about 2 minutes after being abandoned.

The passengers, operator, and crew member were in the water about 2 hours when they were picked up by a lifeboat from a Norwegian freighter and a Coast Guard picket boat. Planes and small craft had been searching since the time of the first radiotelephone message from the craft, but a faulty position report prevented immediate location of the party. Also contributing to the delay was the rough water and the neutral color of the life preservers worn by the men in the water.

As a result of the foundering, the operator and three passengers lost their lives by drowning.

It is pertinent to note that the organizer of the fishing party realized that an emergency existed; the vessel rolling in such a way as to indicate poor stability; the water rising in the engine compartment bilge; and the extreme starboard list taken by the vessel, even after the passengers were distributed on the port side. He so informed the operator, but received no cooperation until the danger was imminent.

The incompetency of the operator in disregarding the danger signs was paramount to the cause of the disaster. Also in question is the locating of portholes in the engine compartment when such space is not a working space.

BUOY TENDER DROWNING

A plywood motor launch makes a pretty good workboat for tending aids-to-navigation in a river. Like every other boat, it does not run itself. It must be handled by people. These people tend to become careless at times after repeated day-in and day-out trips in the little boat working aids-to-navigation. Then comes the accident. A man's life was the consequence of this one.

The launch was tied up with a bow- and stern-line to a barge towed by the tender. No means of throwing off either line under strain was provided. The usual orders "Let go the sternline!" and "Let go the bowline!" were fundamentals of seamanship essential in the 6- to 8-knot current.

They were replaced by a nod of the coxswain's head.

Two men were on the barge handling the lines. Their view of each other was obstructed by a buoy lying on deck. The bowline was let go smartly and taken in the boat, but the man aft was unable to cast off the sternline. As the boat pivoted in the rushing current additional strain was placed on the sternline. The coxswain saw the boat being swept against the side of the barge and decided that drastic action was needed. He kicked the boat full ahead, intending to part the sternline. Instead of the line parting, the transom was jerked out of the boat.

An ax for cutting a line in such an emergency was not available either in the boat or on the barge. No emergency lifesaving gear was immediately at hand. The skipper was alone on the bridge and so had his hands full, but he was able to sling a life ring toward the sinking boat. Obviously, all concerned were in the same boat with many other Coast Guard personnel. Each felt, "Nothing is going to happen to me!"

The boat filled and slowly turned on its side as it was swept down the river. The coxswain jumped clear as the other two men aboard clung to the side of the boat. One man grabbed for the life jacket of the other, who told him to let go. Then the boat sank quickly, pulling the man in the lifejacket to the bottom by the bowline which was still wrapped around his arm. He was able to free himself and float to the surface.

The tender launched a second boat to retrieve the two men in sight. It was equipped with an outboard motor which was not secured by the usual lanyard in addition to the thumbscrews. The outboard motor somehow became detached while maneuvering this boat. It was lost overboard, rendering the would-be rescuers helpless in the strong current. The two men were able to grasp boathooks or long poles extended from the maneuvering tender and were pulled aboard. It was fortunate that they were wearing life preservers so that all their energies could be directed toward getting back on the tender. They were not required to struggle to keep themselves afloat.

A thorough search was conducted for the missing man. His body was not recovered, however, until some 72 hours later. It washed up on a sand bar 8 miles downriver. The life jacket was missing when the body was recovered.

It was decided that unfamiliarity with proper boat-handling procedure was one of the primary causes of this casualty. The operation had been successfully performed so often that some of the important details had appeared to be less and less important. Most all of us are creatures of habit. We find it easier and easier to lose sight of underlying reasons behind ways of doing things. And then without realizing it we become so accustomed to the wrong way that we accept it without question. It is to our advantage to make the right way and the safe way habitual.

DON'T BECOME FLYING DEBRIS

"* * * an explosion occurred in the harbor sending debris flying through the air. I turned in time to see one man flying through the air followed shortly by two others. The explosion was more of a dull thud than a loud or violent explosion followed by intense flames which quickly enveloped the boat.

"At this time I saw another man throw something overboard and follow it over the side. He started swimming and then I saw him go down. This was the last I ever saw of him."

So goes the story of an eyewitness to another terrible motorboat holocaust. Terrible because of the death of the boatman, but probably more so because it was another preventable, unnecessary motorboat accident.

Four men boarded a 30-foot cabin cruiser moored in a harbor on the Great Lakes. They made ready for a run to check the ship's compass by opening windows and hatches, opening floorboards in the cabin and cockpit. Both blowers were started to air out the motor compartment. The door to the cabin was opened and left open. After the boat had aired out for 10 to 15 minutes the engine was started and the boat got underway.

The weather this day was oppressively hot and humid. Weather conditions at the time were: wind westerly 14 miles per hour, temperature 92° F., humidity 65 percent, sky clear, and visibility 4 miles. It should be remembered that these conditions are extremely conducive to the vaporization of gasoline from its comparatively safe liquid form to its lethal, vapor, explosive state.

It was brought out later by an investigation that this craft was well euipped with safety appliances—including two blower circuits on the ignition "ON–OFF" switch. This circuit was located between the two positions which caused the blowers to operate momentarily as a reminder to the operator before starting the engine as follows:

"OFF—First Blower—Second Blower—ON"

Other safety devices included: carburetor flame arrestors of an efficient type on both carburetors of the main engine, a fixed CO_2 bottle coupled to at least two nozzles, lead-lined battery tray, suitable outboard venting of both fuel tanks and brass shields completely enclosing all spark plugs on the main engine.

After preparations were completed the craft got underway, heading south. The party proceeded approximately 100 to 150 yards when there was a terrific explosion which seemed to come from the engine compartment.

At the time of the explosion one man was at the steering station, one was walking toward the door to the cockpit, the third man was at the magnetic compass, and the fourth facing forward in the starboard side of the cabin. Both sections of the windshields were open. Two of the men were apparently blown into the water by the force of the blast; however, this is an assumption because they could not remember just how they got in the water.

A third man was knocked from his feet, but recovered himself in time to jump overboard away from the impending holocaust. The fourth man was seen jumping into the water and swimming away, but before proceeding very far, either from effects of the blast or his inability to swim, he drowned. The cruiser was written off as a total structural loss.

These men apparently readied their cruiser for the voyage strictly "by the book" (as their airing out process would indicate). They were not entirely familiar with the mechanics and operation of the motor and auxiliary equipment on board their vessel.

It was later learned that a small, 2-gallon, independent, gravity-feed gasoline tank was installed to furnish fuel for a small motor-operated auxiliary generator. While all precautions for removing gasoline vapors from the regular equipment had been taken, yet the auxiliary equipment had been overlooked. Certain repairs had been made to the carburetor for this small gasoline motor. While the ventilating system pulled initial vapors out of the motor compartment, the fumes accumulated again when the boat was underway because of a leak in either the carburetor or fuel line of the auxiliary equipment.

In any space partially or completely enclosed, the gasoline vapor becomes explosive when it is in the range of 2 percent to 4 percent in relation to the quantity of air, which made it possible for the very conditions they had tried to combat to return to the bilges of the craft. In spite of all of their safety precautions they should

not have been so intent in their work that they were able to ignore one possibility that would utlimately lead to destruction of human life and property.

Take a warning from this catastrophe and—if you don't understand motors and motorboats—learn all about them from experienced boatmen if possible. These boatmen, through their failure to check repairs made by a mechanic, were unable to detect a small leak that had occurred. This little oversight led to the loss of one life and the complete destruction of a costly boat. The thing to remember is: check all possible sources of gasoline vapor before you start.

PRUDENCE AND SAFETY GO HAND IN HAND

A 37-foot motorboat of 14 gross tons, built in 1944, powered by 2 gasoline engines, engaged in the charter fishing business in the South, exploded and burned to the water's edge with the loss of one life. The board of investigation determined that the following conditions existed prior to the casualty: The boat was equipped with 2 main fuel tanks with the proper filling, fuel suction and vent lines, but, in addition, there was installed an emergency tank of 30-gallon capacity, located in the cabin. The fuel-suction pipe led from the bottom of this tank and passed through the deck. Beneath the deck, directly over an electric bilge pump and a short distance forward of the engines, was the shut-off valve.

Before departing, the tanks were topped off. The emergency tank was used for the first time in several months, but neither its condition nor the status of its shut-off valve was checked. When the vessel had proceeded 1½ miles to sea the explosion occurred, apparently near or slightly in front of the port engine, beneath the deck of the cabin. In addition to the one death, loss of the boat was estimated at $20,000.

The casualty would have been averted had the requirements for motorboats of more than 15 gross tons carrying passengers for hire been followed. This 1 ton difference then, in addition to the carelessness of the operator, resulted in disaster.

Had an inspector examined this vessel, he would disapprove the installation of the emergency gasoline tank for the following reasons:

(1) The material of which it was constructed was not of the proper thickness;

(2) Soldered joints not allowed on tanks of 30-gallon capacity;

(3) All outlets must pass through top of fuel tank; fuel-suction lines shall run inside to near the bottom of the tank;

(4) The operating gear for the shut-off valves at the tanks shall be accessible at all times;

(5) Filling pipes and sounding tubes shall be so arranged that vapors or overflow cannot escape to the inside of the hull; and

(6) Fuel tanks shall be located in watertight compartments. Fuel tank spaces shall be separated from accommodation spaces by vaportight bulkheads.

A prudent operator would, at least, inspect the condition of his fuel-tank installation, particularly when it had not been in use for some time.

CORPSE IDENTIFIES DISASTER

Of utmost concern to the boating public are the boats that go to sea never to be heard from again. There are several such instances each year. Ordinarily there is found a raft or ring buoy, an oar or perhaps a dory which can be traced with certainty to the missing vessel, but the determination of the facts surrounding the casualty is very difficult and is based almost entirely on past history of the vessel and operator, as well as the weather conditions, probable locality of the casualty, and similar factors. Considering all details carefully there may still be doubt as to the cause of the casualty and alternative causes must be listed. Such is the case of the following vessel's disappearance.

The uninspected charter-fishing boat with the operator and five passengers aboard departed from a southern port for a fishing voyage early one fall morning. It was reported missing the next afternoon and an extensive search was conducted by both sea and air, the results being negative. Three days from the day of the boat's departure, the body of the operator was found on the beach; otherwise, neither the boat nor any part of it has been seen since it left the dock.

It was brought out at the Coast Guard's investigation that the operator of the boat was wearing a life jacket at the time his body was found, which indicated that there was a warning to the party rather than an explosion. An examination of the body revealed several bruises and lacerations which were sustained more than 36 hours prior to death. Inasmuch as the vessel carried no navigation lights, and the operator customarily fished in the Gulf Stream, there is a strong possibility that the vessel was struck at night by an ocean-going ship.

Also ascertained was the fact that a leak had been repaired by the operator on the bottom of the boat near the bow by a board being fastened over the leak with caulking on the inside. The boat continued to leak, however, since the automatic pump functioned at frequent intervals. In other respects the boat and its equipment was considered in good condition.

During the afternoon of the first day several squalls came up in the area; the wind, southerly, blew from 19 to 26 miles per hour; the seas were rough.

It can only be assumed from the foregoing that a leak was caused, or the original leak was advanced, by the rough seas and the pumps could not dispose of the water, resulting in the sinking of the boat. Or that, while fishing, the boat was anchored or allowed to drift, and the pump strained the batteries, resulting in loss of motor power causing the boat to drift upon the reefs.

In one way or another a deficiency in the boat resulted in its loss. Although the actual cause cannot be determined, cases of this nature brought to the attention of the public may go far in making them aware of the possible consequences of going to sea in any vessel which is not up to standard in every respect.

"KNOW-HOW" MAY SAVE YOUR LIFE

The subject of this casualty is a half-inch globe valve, installed in the line leading from an air receiver to an air whistle. Because of this half-inch globe valve a 57-foot motorboat sustained about $15,000 in damages, 41 passengers, men and women, and 2 crew members were required to abandon her 12 miles from shore, 1 passenger received a broken leg, another a heart attack, and several suffered from mild shock. Furthermore, this half-inch globe valve was incorrectly installed and served no useful purpose.

The vessel sailed from a southern port for the fishing banks with 41 passengers, the captain and mate aboard. When approximately 12 miles out, a terrific explosion occurred which holed the vessel, caused her to settle immediately to deck level, and necessitated her abandonment. Several factors existed, fortunately, for those in the water, which determined the designation "casualty," rather than the ominous "tragedy." In charge of the motorboat was an experienced and practical seaman. Before the passengers took to the water, all were wearing life preservers; though they must have found the experience exciting, there was no panic, due in great part to the confidence they had in the skipper. He

called a marine operator and notified her of his plight and position. Overtaking the motorboat was a substantially larger vessel. Alert eyes saw what was taking place on the craft and in perhaps 20 or 30 minutes she arrived on the scene and began taking people from the water. At about the same time a Coast Guard plane flew over and dropped rafts and medical supplies. There was a doctor on the larger craft as a passenger, who treated the survivors requiring attention. The situation of the passengers of the motorboat could have been much worse.

To get back to the globe valve, an air compressor was installed that was driven by a belt from the main engine. There was no shut-off for the air compressor other than slipping of the belt. The globe valve was located in the line from the air receiver to the whistle, but came *before* the relief valve provided to protect the air receiver from excess pressure. The globe valve was closed when the vessel sailed from port, isolating the relief valve. The compressor's belt drive was lined up with the engine, and it took about 1 hour and 45 minutes for the pressure in the tank to build up to the bursting point. The relief valve setting is normally 75 to 80 pounds per square inch. It was roughly figured that the tank would withstand a pressure of 450 to 500 pounds before rupturing, and by this figure the enormity of the explosion can be imagined.

Employ competent personnel to effect engineering installations and repairs.

RESTRICTED VISIBILITY RESTRICTS SAFETY

A boat used for pleasure purposes is often operated with but one person aboard. Even when guests are present, the operator may well be the only person interested in the navigation of the vessel. If his vision is obscured by bad weather or poorly located windows in the pilothouse or obstacles before or around the pilothouse, navigation becomes a matter of chance. Not long ago a collision resulting in the death of two persons occurred, of which one of the contributing causes was restricted visibility. The accident took place late at night; weather conditions were good.

A 14-foot outboard motorboat with 3 persons aboard was proceeding up-river at about 10 miles per hour when the operator saw the starboard side light of a powerboat coming downstream and bearing rapidly upon him. The outboard motorboat, displaying an all-around white light aft and a combination red-green running light in the bow in compliance with applicable regulations changed course to evade collision, but the boat was struck amidships throwing the three occupants into the water and was demolished. The operator of the small motorboat was later taken aboard the powerboat apparently unharmed, but the other two occupants were injured by the screw of the powerboat and drowned.

The twin-screw powerboat, 44 feet long, of 20 gross tons was proceeding downstream at 14 miles per hour in the charge of an unlicensed operator. There were seven other persons aboard, including the owner, but none of these were assisting the operator or taking any part in the operation of the vessel. The vessel's steering was controlled by an automatic pilot; the operator was standing abaft the wheel in the enclosed pilothouse with the forward windows closed. He knew nothing of the existence of an approaching outboard motorboat, nor did he realize that there had been a collision until he heard the shouts of the other occupants who had felt a mild sensation as of running over solid material, and immediately saw the wreckage of a small boat alongside.

From the facts, as here presented, it would be difficult to arrive at any other conclusion than that this collision was caused by gross negligence; that the operator was not keeping a lookout forward and failed otherwise to navigate cautiously and prudently. In effect, this was the case, but a mitigating factor to be considered is found in the very construction of the offending vessel. The point where the operator was standing behind the wheel in the pilothouse is 22 feet from the bow of the vessel. When the boat is making 13 or 14 miles per hour in calm water there is a sector dead ahead of the circle of visibility which is obscured, extending a distance of 150 feet forward of the bow of the boat. Any object with little freeboard lying within this sector cannot be seen by the operator in his usual position. Such a condition calls for a permanent bow lookout or a structural modification.

This is not an isolated situation. The fundamental design is well liked, pleasing if not practical, and may be seen at any small-boat refuge. Many minor casualties can be attributed to this design, including collisions between vessels, collisions with objects such as docks, walls and floats, running over driftwood and even swimmers. The end point of impracticality is reached, however, when a boat and three occupants can be run down without the knowledge of an experienced operator.

Under all circumstances of vessel operation MAINTAIN AN ADEQUATE LOOKOUT.

NO VENTILATION

A recent fire at a light station burned a portion of the wharf and completely destroyed the hoisting engine house. Poor installation of antiquated machinery parts and careless handling of gasoline where possible sources of ignition existed were the contributing factors.

Due to an unknown cause, the glass sediment chamber of the hoisting engine was broken. Obviously some gasoline must have been spilled when the sediment chamber burst. As repairs were started additional gasoline leaked from the gas lines to add to the hazard. It was necessary to completely disconnect the carburetor, stop valve, and other fittings and drain the entire gas tank to work on the lines. The shut-off valve, sediment bulb and other fittings were combined into a single unit. The storage battery for the engine was located directly beneath the sediment chamber fitting and was not disconnected or moved.

Suddenly the entire area was aflame. The engineman engaged in making repairs surmised that he had kicked a safety can, resting on deck near the battery, against the battery and that the spout had shorted across the battery terminals. Even the slightest spark from a dropped wrench, a knife or a key ring swinging on a man's belt, from a scraping shoe nail, or from a lighted cigarette, perhaps, would have been sufficient to ignite the plentiful gasoline vapors. They were certainly ripe for an explosion. In a few seconds he was watching an extremely hot fire upon which three extinguishers had negligible effect.

TAKE TIME ENOUGH

to do the Job SAFELY!

It took him at least 5 minutes to spread the alarm. Immediately a small hose connected to a fresh-water tank was placed in operation and a fire pump was started. When water was obtained on the 2½-inch hose from the fire pump the hose burst, thereby retarding efforts to fight the blaze to an even greater extent. The crew was successful, however, in saving most of the loading dock and other equipment.

Much has been written on the potential hazards of gasoline vapors. Yet most of us allow familiarity to breed contempt in regard to gasoline. It is true that liquid gasoline is very safe. It definitely will not burn in the liquid form. It does vaporize very readily at normal temperatures and these vapors must be treated with respect. We cannot afford the luxury of even a moment's carelessness around gasoline fumes. Not only are they dangerous as illustrated in the case of this fire, but they are also rather toxic.

DOUBLE DEATH

Recently a casualty occurred during a boat drill which resulted in the death of two seamen and serious damage to a lifeboat.

The vessel concerned was underway at sea and the lifeboats had been lowered to the embarkation deck during the course of a routine boat drill. There were three men in the boat during the time it was being lowered—one in the forward end on the outboard side, and the other two in the after end. After the drill, instead of leaving at the embarkation deck before the boat was hoisted home, as prudence would have dictated, these seamen decided to ride it up to its stowed position. The boat came up smoothly and evenly and just before the carriage reached the limit switches, the officer in charge called out "Stop the boat." The seaman who was stationed at the rail control switch removed his finger from the spring-actuated hoisting switch, but due to faulty maintenance the boat failed to stop. The officer then shouted "Pull the emergency switch," but before the man stationed at the rail could open the emergency switch, the davit crashed against the stops, the falls parted, and the boat dropped into the sea. One man managed to extricate himself from the boat as it was falling, but the other two seamen fell with the boat and were so badly injured that they died before they could be picked up from the water.

An intensive examination of the davits, switches, etc., revealed several instances of improper maintenance and poor upkeep. Examples of improper maintenance found during the examination were (a) incorrect coil-retainer replacement which short-circuited the master-control switch; and (b) a rearrangement of the controller wiring which rendered operation of the limit switches useless. As a result of these conditions at the time of the accident, the only way power could have been removed from the hoisting motor was by opening the emergency disconnect switch. Improper maintenance was, therefore, the primary cause of this casualty. While having no direct connection with the casualty, several instances of poor upkeep were uncovered by the investigators. Among these were rail switches so gummed by paint that the springs which normally returned them to the open position were unable to operate them; wheels on the limit switch arms frozen with paint and rust; and rollers on davit cradles frozen with rust. In addition, the lettering on the various switches showing ON and OFF positions was obliterated by paint. These conditions indicated a general laxness in connection with the upkeep of the lifesaving equipment which the Coast Guard strongly condemns.

The complicated chain of circumstances which led to the failure of the boat to stop before reaching its stowed position gives added point to the Coast Guard's previous warnings in regard to the taking of chances when hoisting lifeboats.

It is strongly urged, whenever a lifeboat is being hoisted home, that it be stopped while level with the rail or at some distance from the final stowed position and all persons in the lifeboat be then required to get out. In the case cited above, if this procedure had been followed, there would have been time to open the emergency disconnect switch when it was found that the regular control switches had been made inoperative, and it is probable that the two men concerned would not have lost their lives.

APPENDIX

Amendments to Regulations

CG–172

TITLE 33—NAVIGATION AND NAVIGABLE WATERS

Chapter I—Coast Guard, Department of the Treasury

Subchapter E—Navigation Requirements for the Great Lakes and St. Marys River

[CGFR 51–62]

PART 92—ANCHORAGE AND NAVIGATION REQUIREMENTS; ST. MARY'S RIVER, MICHIGAN

REVISION OF PART

A notice regarding the anchorage and navigation regulations for the St. Marys River, Michigan, was published in the Federal Register dated October 5, 1951 (16 F. R. 10161, 10162), and a public hearing was held by the Commander of the Ninth Coast Guard District on November 15, 1951, in the Keith Building, Cleveland, Ohio.

All comments and suggestions submitted at the public hearing were considered by the Merchant Marine Council and changes in the regulations have been made.

The purpose for the regulations designated as 33 CFR Part 92 is to establish the requirements governing the movements and anchorage of vessels and rafts in the St. Marys River from Point Iroquois on Lake Superior to Point Detour on Lake Huron. The changes in the regulations correct omissions, identify correctly certain buoys and landmarks, establish speed and passing rules suitable for present day operations, and includes other editorial changes. There has been no change in the text of the sections designated 92.03, 92.05, 92.07, 92.13, 92.25, 92.27, 92.29, 92.31, 92.33, 92.35, 92.37, 92.41, 92.43, 92.47, 92.55, 92.59, 92.63, 92.67, 92.69, 92.71, 92.73, 92.75, 92.77, 92.79, 92.81, which were formerly designated §§ 92.01, 92.02, 92.03, 92.06, 92.2, 92.3, 92.4, 92.5, 92.6, 92.7, 92.8, 92.10, 92.11, 92.13, 92.17, 92.19, 92.21, 92.23, 92.24, 92.25, 92.26, 92.27, 92.28, 92.29, 92.30, respectively.

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Treasury Department Order dated July 31, 1950 (15 F. R. 6521), to promulgate regulations in accordance with the statute cited with the regulations below, the following amendments to the regulations are prescribed and shall become effective thirty days after date of publication of this document in the Federal Register:

Sec.
92.01 General instructions.
92.03 Captain of the Port.
92.05 St. Mary's River Patrol.

Sec.
92.07 District engineer.
92.09 Lookout stations.
92.11 Dispatch boats.
92.13 Routing of traffic in channels.
92.15 Visual signals at lookout stations.
92.17 Temporary closure of Middle Neebish Channel.
92.19 Temporary closure of West Neebish Channel.
92.21 Sound signals used by patrol.
92.23 Definitions.
92.25 Obedience to instructions.
92.27 Anchorage grounds.
92.29 Emergency anchoring.
92.31 Forbidden anchorage.
92.33 Dredging and wrecking plants in channel.
92.35 Shifting anchorage when directed.
92.37 Order of departure from anchorage.
92.39 Visual signals for dredges and wrecking plants.
92.41 Visual signals on vessel aground in channel.
92.43 Sound signals for vessel aground in the channel.
92.45 Special sound signal for Middle Neebish Channel.
92.47 Temporary closure of channel.
92.49 Speed limit between Everons Point and Big Point.
92.51 Speed limit in Middle Neebish Dike Cut, the West Neebish Rock Cut, and the Sailors Encampment Channel.
92.53 Speed limits; two-way traffic.
92.55 Speed limit approaching St. Marys Falls Canal.
92.57 Pipe Island passages.
92.59 Directional Neebish Channels.
92.61 Passing and approach in channels.
92.63 Vessel passing towing tug going in same direction.
92.65 Vessels going in same direction; when passing prohibited.
92.67 Towing vessels; hauling clear of ranges; tow lines.
92.69 Dropping of towed vessels.
92.71 Speed through dredged channels.
92.73 Navigation of dredged channels by sail.
92.75 Obstruction of traffic; retarding other vessels.
92.77 Rafts in channels.
92.79 Reporting obstruction of channel.
92.81 Government vessels.
92.83 Small craft.

AUTHORITY: §§ 92.01 to 92.83 issued under secs. 1–3, 29 Stat. 54–55, as amended; 33 U. S. C. 474.

§ 92.01 *General instructions.* The regulations in this part control vessel traffic in the United States waters of the St. Mary's River between Point Iroquois and Point Detour, except the waters of the St. Marys Falls Canal. These regulations in this part shall not be considered to cover all of the obligations imposed by the law upon vessels and their operators, and shall not be construed as relieving the owners or persons operating vessels from any penalties which might be incurred in the violation of any of the general laws relating to shipping on the Great Lakes and tributary waters, or a violation of regulations issued pursuant to such laws.

§ 92.03 *Captain of the Port.* The Coast Guard officer to whom is assigned the duty of enforcing the rules and regulations in this part is designated "Captain of the Port." His office is at Saulte Ste. Marie, Mich.

§ 92.05 *St. Marys River patrol.* The St. Marys River patrol comprises all of the personnel and equipment of the Coast Guard employed by the captain of the port in the enforcement of the rules and regulations in this part.

§ 92.07 *District engineer.* The officer of the United States Army Engineers in charge of the district is authorized to declare any channel closed when by reason of low water, obstruction, or obscurity in the channel or other cause, he deems such action necessary for the safety of shipping; and under contrary circumstances, or for the expediting of vessel passage, to declare any channel open. He or his local representative decides the proper disposition of dredging and wrecking outfits legally engaged in improving or clearing a channel, and the allowable maximum speed and draft of vessels in channels which are impaired temporarily. His decisions with respect to the foregoing are duly communicated to the captain of the port. The movements of vessels in the St. Marys Falls Canal are under the direction of the district engineer or his local representative.

§ 92.09 *Lookout stations.* Lookout stations of the St. Marys River patrol are numbered and located as follows:

No. 1 on Johnson Point, Sailors Encampment, Middle Neebish Channel.

APPROVALS OF EQUIPMENT TO EXPIRE

A description of the new numbering and certificating system for approved equipment to be used on merchant vessels was published in the Proceedings of the Merchant Marine Council of July 1946. In accordance with the system described, there was published in the Federal Register on July 31, 1947, a complete relisting of all outstanding approvals of lifesaving, fire-fighting, and miscellaneous equipment or installations, except several types of equipment for which specific requirements had not been promulgated. In the relisting, approval numbers were assigned to each item of equipment and the duration of the approval was limited to a period of 5 years after date of publication. In accordance with these conditions, the 5-year effective period for the first group of numbered approvals will expire on July 31, 1952.

Manufacturers have been notified by letter concerning the approaching expiration of the approvals for certain equipment they manufacture, and have been requested to inform the Commandant (MMT), United States Coast Guard, Washington 25, D. C., before April 1, 1952, as to whether or not it is their intention to continue manufacture of such equipment subsequent to July 31, 1952, and if so, whether or not any modifications have been made in the materials, design, or construction of such articles subsequent to the issuance of approval. In some instances, where the Coast Guard has changed the specifications or requirements applicable to a particular type of equipment, the manufacturers have been instructed that in order to extend approval of the article after July 31, 1952, it will be necessary for certain plans to be submitted and, in some cases, for additional tests to be conducted.

Following a review of the status of each article of equipment or material which was approved on July 31, 1947, and shortly after July 31, 1952, it is expected that a notice will be published in the Federal Register which will either extend the approvals of such equipment for an additional 5-year period, or will list expiration of the approval number previously assigned to the equipment in question.

The process of reviewing approvals of equipment approximately 6 months before the expiration of their 5-year duration under the new system will continue monthly. It is expected that as the date for expiration of the approval covering a specific item of equipment approaches, the manufacturer will be notified, and depending upon whether or not the equipment is intended to be manufactured without change, either the approval will be extended for an additional 5-year period or its expiration will be published in the Federal Register.

It should be clearly understood that in those cases where the approval of such equipment is not renewed, it will not be necessary to replace it aboard ship, but it may be continued in service so long as in good condition. In general, the only change in the official status of such equipment is that it is no longer being manufactured and is not available on the current market, so that its listing is transferred from the Coast Guard's active list of equipment approved for merchant vessels to the list of formerly approved equipment.

No. 3 off Mission Point, Little Rapids Cut.

No. 4 at upper end of Rock Cut, West Neebish Channel.

No. 6 off Brush Point, upper St. Marys River.

§ 92.11 *Dispatch boats.* (a) A dispatch boat of the river patrol is customarily located at each of the following places:

(1) Sailors Encampment Mill Dock, Neebish Island.

(2) In the vicinity of Dike Cut, Middle Neebish Channel, or Rock Cut, West Neebish Channel.

(3) At the wharf of Big Point, upper St. Marys River.

(b) These boats are used to direct anchorage and movements of vessels in their vicinity.

§ 92.13 *Routing of traffic in channels.* The routing of traffic through the several dredged channels is contingent upon the physical conditions in them; and the vessel masters should be prepared upon notice from the patrol, or through published notification, to follow such alternate route as may be prescribed, or to proceed with caution. Under normal conditions traffic passes up the Middle Neebish Channel, and down the West Neebish Channel; but it may be necessary in emergency to pass two-way traffic in either of those channels. It may also become necessary to close either or both channels for a short time owing to obscurity of navigation marks, in which case vessels should be prepared to anchor and wait a clearing away of obscurity.

§ 92.15 *Visual signals at lookout stations.* (a) The following signals are hoisted at patrol lookout stations to indicate changes in the conditions of channel passage, and masters of vessels approaching the entrances to the several channels should be on the alert for such signals:

(1) *Closure of channel.* Indicated by two red balls by day, two red lights by night, hoisted vertically about 6 feet apart.

(2) *Channel partially obstructed.* Indicated by a red ball over a white ball by day, a red light over a white light by night, hoisted vertically about 6 feet apart.

(3) *Special signal for No. 1 Lookout Station.* Displayed when a downbound vessel enters the Dark Hole while an upbound vessel is between Everens Point and Johnson Point. Indicated by a white ball by day, a white light over a red light by night, hoisted vertically about 6 feet apart.

(4) *Tow signal for No. 1 Lookout Station.* Displayed when a downbound tow enters the Dark Hole while an upbound vessel is between Everens Point and Johnson Point. Indicated by a white ball over a red ball by day, a white light over two red lights by night hoisted vertically about 6 feet apart.

(b) Boats of the patrol may carry the signal described in paragraph (a) (1) of this section, as required. Signals described in paragraphs (a) (3) and (4) of this section will be used only when two-way traffic is being passed through Middle Neebish Channel.

§ 92.17 *Temporary closure of Middle Neebish Channel.* With two-way traffic passing through West Neebish Channel, closure and obstruction signals will be shown from Lookout Station Nos. 1 and 3. With one-way traffic in the channel, the signals will be shown from Lookout Station No. 1.

§ 92.19 *Temporary closure of West Neebish Channel.* With two-way traffic passing through West Neebish Channel, closure and obstruction signals will be shown from Lookout Station Nos. 3 and 4. With one-way traffic in the channel, the signals will be shown from Lookout Station Nos. 3 and 4.

§ 92.21 *Sound signals used by patrol.* (a) Two short blasts and one long blast of whistle or horn indicate that the signalling unit desires to speak a passing vessel, and the signaled vessel will check speed and await orders. Vessels should use this signal to speak a lookout station or passing patrol boat.

(b) Three long blasts of whistle or horn indicate that the vessel signaled is moving at too high a rate of speed. This signal may be used by dredging and wrecking plants working in channels.

§ 92.23 *Definitions.* (a) The word "vessel," as used in this part, shall be held to include all types of floating craft and equipment. Where special provisions apply only to rafts, dredges, etc., the type will be specified by its class designation.

(b) Speed limits established in this part are expressed in terms of statute miles per hour over the ground.

§ 92.25 *Obedience to instructions.* All persons in charge of or operating vessels in the St. Marys River are required to yield prompt and implicit obedience to the directions of the captain of the port and the officers and men of the St. Marys River patrol, acting under his instructions, in connection with the enforcement of the rules and regulations in this part.

§ 92.27 *Anchorage grounds.* The authorized anchorage grounds are those areas outside of the dredged channels, and clear of the steering courses in other portions of the St. Marys River, between Point Iroquois and Point Detour. Vessels shall be anchored so as not to swing into channel limits or across steering courses.

§ 92.29 *Emergency anchoring.* A vessel may be permitted in an emergency, due to breakdown of machinery or other accident or obsecurity of navigation marks to anchor in a dredged channel; but the vessel shall be anchored as near the edge of the channel as possible, and shall get under way and proceed as soon as the emergency ceases, unless otherwise directed.

§ 92.31 *Forbidden anchorage.* It is forbidden to anchor a vessel at any time in the area to the southward of the Point aux Pins Range, lying between Lookout Station No. 6 and the waterworks intake crib off Big Point; also within a quarter mile of the said intake crib in any direction.

§ 92.33 *Dredging and wrecking plants in channel.* Duly authorized dredging and wrecking plants, when engaged in improving or clearing a channel, will be permitted to anchor or moor in the channel under such conditions as may be prescribed by the district engineer or his local representative.

§ 92.35 *Shifting anchorage when directed.* The captain of the port, or the St. Marys River patrol acting under his instructions, is empowered to cause any anchored vessel to shift anchorage when and as directed, whenever in the judgment of the enforcing officer such action is deemed necessary for the safety of vessels, the safe or expeditious passage of shipping, or the preservation or effective operation of Government installations. In enforcing this section the officer will have due regard for the hazards of navigation and vessel handling which may exist at the time, and under such circumstances will permit a reasonable delay in compliance by the vessel directed to move.

§ 92.37 *Order of departure from anchorage.* Whenever vessels collect in any part of the river or an anchorage grounds, by reason of temporary closure of channel or impediment to navigation, the order of getting under way and proceeding by the vessels so collected shall be the order in which they arrived at the place of assembly, unless otherwise directed by a unit of the patrol. The patrol is authorized to advance any vessel in the order of procedure to expedite the movement of mails, passengers, or cargo of a perishable nature, or to facilitate passage through the locks as indicated to the patrol by the officer in charge of the St. Marys Falls Canal.

§ 92.39 *Visual signals for dredges and wrecking plants.* Dredges and

wrecking plants while engaged in working on the St. Marys River shall display the visual signals prescribed for them by the Department of the Army.

§ 92.41 *Visual signals on vessel aground in channel.* A vessel aground in a dredged channel shall carry from sunset to sunrise in addition to the white light or lights prescribed for a vessel at anchor, two red lights hoisted vertically not less than 3 feet apart, in such position and height as to be readily visible to vessels bound up and down the channel.

§ 92.43 *Sound signal for vessel aground in the channel.* A vessel aground in a channel shall sound several short and rapid blasts of her whistle, not less than five, upon the approach of another vessel bound up or down the channel. If the approaching vessel cannot pass with safety, she shall stop and make proper dispositions to avoid fouling the grounded vessel, and shall upon the approach of another vessel coming up astern sound the same signal. Should additional vessels approach from that same direction, it shall be the duty of the last vessel in line to sound this signal. In times of low visibility, the signal described herein shall be in addition to the prescribed fog signal.

§ 92.45 *Special sound signal for Middle Neebish Channel.* In passing through Middle Neebish Channel, a downbound vessel shall sound a 10-second blast of her whistle when abreast of Coyle Point and an upbound vessel shall sound the same signal when abreast of Everens Point.

§ 92.47 *Temporary closure of channel.* A vessel approaching a channel entrance and observing that the closure signal is shown, or upon being advised by the patrol that the channel is closed, shall come to anchor and not proceed through the channel until the closure signal is lowered, or instructions are received from the patrol to proceed.

§ 92.49 *Speed limit between Everens Point and Big Point.* (a) Vessels of 500 gross tons or over shall at no time exceed a speed of 12 statute miles per hour over the ground between the following points in the St. Marys River:

(1) Upbound:

(i) Everens Point and Lake Nicolet Lighted Buoys Nos. 63 and 64.

(ii) Six-Mile Point Range Rear Light and Big Point.

(2) Downbound:

(i) Big Point and Six-Mile Point Range Rear Light.

(ii) Nine-Mile Point and lower end of West Neebish Channel.

(b) Vessels of 500 gross tons or over may, subject to the limitation of § 92.65, proceed at a speed of not over 15 statute miles per hour over the ground in the following sections of the St. Marys River:

(1) Upbound between Lake Nicolet Lighted Buoys Nos. 63 and 64 and Six-Mile Point Range Rear Light.

(2) Downbound between Six-Mile Point Range Rear Light and Nine-Mile Point.

(c) As a temporary measure extending to the end of the 1952 season of navigation, vessels of 50 gross tons or over, either upbound or downbound, shall not exceed a speed of 10 statute miles per hour over the ground in the area between Lookout Station No. 3 and Six-Mile Point Range Rear Light. The speed limit for vessels of 500 gross tons or over prescribed by paragraph (a) of this section is temporarily modified to the extent required by this paragraph.

§ 92.51 *Speed limit in Middle Neebish Dike Cut, the West Neebish Rock Cut, and the Sailors Encampment Channel.* Vessels of 50 gross tons or over shall at no time exceed a speed of 10 statute miles per hour in the Middle Neebish Dike Cut, the West Neebish Rock Cut, or the Sailors Encampment Channel below Johnson Point.

§ 92.53 *Speed limits; two-way traffic.* When one of the lower channels is closed, making it necessary to accommodate two-way traffic in the Middle Neebish or the West Neebish Channel, vessels of 500 gross tons or over shall not exceed a speed of 10 statute miles per hour in the following named reaches:

(a) Between Everens Point, Lake Munuscong, and Nine-Mile Point, Lake Nicolet.

(b) Between Nine-Mile Point, Lake Nicolet, and the lower end of West Neebish Channel in Lake Munuscong.

§ 92.55 *Speed limit approaching St. Marys Falls Canal.* Vessels approaching the St. Marys Falls Canal shall at all times reduce speed to the extent of being under full control with ability to maneuver in accordance with the instructions of the officers in charge of the St. Marys Falls Canal before entering the canal.

§ 92.57 *Pipe Island passages.* Vessels of 500 gross tons or over shall leave Pipe Island Shoal and Pipe Island on the port hand in passing them, except that upbound vessels intending to stop at one of the Detour coal wharves above Watson Reefs may pass to the westward of the shoal and island.

§ 92.59 *Directional Neebish Channels.* When both the Middle Neebish Channel and the West Neebish Channel are available to traffic, vessels of 100 gross tons or over shall pass upbound through Middle Neebish Channel and downbound through West Neebish Channel. Vessels over the prescribed tonnage making regular local stops in either of those channels may run counter to the general traffic direction only on written permit issued by the captain of the port, for such term and under such conditions of renewal or revocation as he may prescribe. A vessel thus running counter to the general traffic shall keep off the channel range when an approaching vessel is on or entering that range.

§ 92.61 *Passing and approach in channels.* (a) In a channel where the speed is restricted to 12 miles an hour or less, no vessel of 500 gross tons or over shall approach nearer than one-quarter of a mile to a vessel bound in the same direction, nor pass such a vessel except between Little Rapids Cut Lighted Buoy 87 and the St. Marys Falls Canal, and for upbound vessels, only between Vidal Shoal and Big Point or except as provided in paragraph (b) of this section and § 92.63.

(b) In order to facilitate passing in Lake Nicolet, upbound vessels may, after passing Lake Nicolet Lighted Buoy No. 58 off Shingle Bay, approach not nearer than 500 feet to a vessel bound in the same direction.

§ 92.63 *Vessel passing towing tug going in same direction.* A vessel at normal speed coming up on a tug towing a dredge or scow bound in the same direction as the overtaking vessel in a restricted channel may pass such tow, after the prescribed exchange of signals. Under such circumstances the tug shall not increase speed during the passing, and shall haul with its tow to the proper side of the channel to allow passing room.

§ 92.65 *Vessels going in same direction; when passing prohibited.* No vessel shall pass or attempt to pass another vessel bound in the same direction, when such passing would bring more than 2 vessels abreast, in any of the passages between the intersection of the Winter Point and Pilot Island Ranges in Lake Munuscong and Big Point in upper St. Marys River, except that such passing is permitted between Little Rapids Cut Lighted Buoy No. 87 and the St. Marys Falls Canal.

§ 92.67 *Towing vessels; hauling clear of ranges; tow lines.* (a) Towing vessels engaged in shortening or lengthening tows or dropping or making up tows, mooring or unmooring or anchoring or hoisting anchor, loading or discharging stores or cargo from boats alongside, or awaiting supply boats, shall haul clear of the ranges and permit unobstructed passage to other vessels.

(b) On the connecting waters of the Great Lakes between Point Iroquois, upper St. Marys River and Frying Pan Island, lower St. Marys River, the length of tow lines shall not exceed by more than 50 feet, the length of the scow, barge, vessel, or other craft being towed: *Provided*, That no scow, barge, vessel, or other craft shall be required to have a tow line less than 250 feet. The length of the tow line shall be measured from the stern of one vessel to the bow of the following vessel.

§ 92.69 *Dropping of towed vessels.* Towed vessels shall not be dropped in any of the usual steering courses, but shall be hauled clear of the course before being left by the towing vessel.

§ 92.71 *Speed through dredged channels.* The minimum speed at which any vessel or tow will be permitted to make regular passage through any dredged channel shall be 5 miles an hour over the ground; and any craft which cannot make this speed shall not enter any of the channels until the patrol has been communicated with, and directions received as to further procedure.

§ 92.73 *Navigation of dredged channels by sail.* Vessels of 10 gross tons or over shall not navigate any dredged channel under sail power; and such vessel capable of propulsion by both machinery and sail shall not carry sail in any of the dredged channels.

§ 92.75 *Obstruction of traffic; retarding other vessels.* No vessel shall maneuver so as to affect adversely the relative position of another vessel when entering any of the cuts, nor attempt to obstruct traffic, nor unnecessarily retard a following vessel, nor increase speed after having signalled permission to an overtaking vessel to pass.

§ 92.77 *Rafts in channels.* No raft shall enter any of the dredged channels between Everens Point and the improved channel above Round Island without first having communicated with the patrol and obtained permission and directions as to route and procedure. So long as rafts are in any portion of the passages between the points named they shall be under the control of the patrol, and shall obey all instructions as to time and manner of movement or stoppage. They shall use the Lake George Channel when it will serve their passage toward destination.

§ 92.79 *Reporting obstruction of channel.* A vessel observing an obstruction of the channel caused by an accident of any nature at any point in the St. Marys River, between Point Detour and Point Iroquois, shall report the same to the canal office or the first lookout station or boat of the patrol passed.

§ 92.81 *Government vessels.* Vessels when signalled to do so shall give way to boats of the St. Marys River patrol, and to United States vessels on duty in connection with the maintenance of channels, and accord the right of way to such boats and vessels.

§ 92.83 *Small craft.* (a) Motorboats as defined by section 1 of an act of Congress approved April 25, 1940 (54 Stat. 163; 46 U. S. C. 526), shall be considered amendable to the provisions of §§ 92.25 to 92.31, inclusive, 92.35, 92.79, and 92.81.

(b) Sail vessels under 10 gross tons shall be considered amendable to the provisions of §§ 92.25 to 92.31, inclusive, and 92.35.

Dated: December 28, 1951.

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

[F. R. Doc. 52-57; Filed, Jan. 3, 1952; 8:48 a. m., 17 F. R. 120—1/4/52.

CG-239

Subchapter K—Security of Vessels

[CGFR 52-2]

PART 121—SECURITY CHECK AND CLEARANCE OF MERCHANT MARINE PERSONNEL

REQUIREMENTS FOR DOCUMENTS BEARING SECURITY CLEARANCE INDORSEMENT

Pursuant to the authority of 33 CFR 6.10-3 in Executive Order 10173, as amended by Executive Order 10277 (15 F. R. 7007, 3 CFR, 1950 Supp., 16 F. R. 7537), 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 present regulation designed 33 CFR 121.16, now requires that all persons employed on merchant vessels of the United States of 100 gross tons and upwards engaged in (1) the Great Lakes trade, or (2) the foreign trade, or (3) the intercoastal trade, or (4) the coastwise trade to Alaska or the Hawaiian Islands, shall be required as a condition of employment to be in possession of documents bearing special validation indorsement for emergency service prior to acceptance of employment as members of crews of such vessels. It has been determined that the average percentage of crews holding validated documents is now approximately 90 percent and that more than enough licensed officers and certificated men have been issued validated documents to man the vessels in all of the designated categories referred to in 33 CFR 121.02. The purpose of the following amendment to 33 CFR 121.16 is to (a) add to the categories previously published all merchant vessels of the United States of 100 gross tons and upward engaged in (i) trade to the Dominion of Canada, the West Indies, or Mexico, and (ii) coastwise trade; (b) republish all categories of vessels requiring licensed officers and certificated men to be holders of validated documents so that it will be worded similar to 33 CFR 121.02; (c) add a statement defining when a vessel is employed; and (d) add a statement defining engagement of a person. Since the security interests of the United States called for the aforesaid application of the provisions of 33 CFR 6.10-3 at the earliest practicable date and because of the national emergency declared by the President, it is found that compliance with the notice of proposed rule making, public rule making procedure thereon, and effective date requirements of the Administrative Procedure Act is impracticable and contrary to the public interest.

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Executive Order 10173, as amended by Executive Order 10277, § 121.16 is amended to read as follows, which shall become effective on and after February 15, 1952:

§ 121.16 *Requirements for documents bearing security clearance indorsement.* (a) On and after February 15, 1952, every person shall be required as a condition of employment to be in possession of a document bearing a special validation indorsement for emergency service prior to acceptance of employment as a member of the crew of any vessel coming within any one of the following categories:

(1) All merchant vessels of the United States of 100 gross tons and upward engaged in the foreign trade.

(2) All merchant vessels of the United States of 100 gross tons and upward engaged in trade to the Dominion of Canada, the West Indies, or Mexico.

(3) All merchant vessels of the United States of 100 gross tons and upward engaged in the Intercoastal trade.

(4) All merchant vessels of the United States of 100 gross tons and upward engaged in the coastwise trade, including those vessels engaged in trade to Alaska, or the Hawaiian Islands.

(5) All merchant vessels of the United States of 100 gross tons and upward engaged in trade on the Great Lakes.

(b) The issuance of documents bearing security clearance shall be in the form and manner prescribed by § 121.15.

(c) The categories of vessels listed in paragraph (a) of this section are considered to be engaged in trade whether at anchor or made fast to a dock, loading or unloading passengers or cargo, or merely in an idle status awaiting passengers or cargo, but are not considered to be engaged in trade if laid up or dismantled or out of commission.

(d) By employed 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 for standby, relief, or other capacities.

Dated: January 15, 1952.

(40 Stat. 220, as amended; 50 U. S. C. 191. E. O. 10173, Oct. 18, 1950, 15 F. R. 7005; 3 CFR, 1950 Supp. E. O. 10277, Aug. 1, 1951, 16 F. R. 7537)

[SEAL] MERLIN O'NEILL,
Vice Adm., U. S. Coast Guard,
Commandant.

[F. R. Doc. 52-817; Filed, Jan. 21, 1952; 8:53 a. m., 17 F. R. 658—1/22/52]

Subchapter L—Security of Waterfront Facilities

[CGFR 51-59]

PART 125—IDENTIFICATION CREDENTIALS FOR PERSONS REQUIRING ACCESS TO WATERFRONT FACILITIES OR VESSELS

IDENTIFICATION CREDENTIALS

Pursuant to the authority of 33 CFR 6.10-3 in executive Order 10173, as amended by Executive Order 10277 (15 F. R. 7007, 3 CFR, 1950 Supp. 16 F. R. 7537) the Commandant may define and designate those categories of vessels and waterfront facilities wherein any person seeking access shall be required to carry identification credentials as prescribed in 33 CFR 6.10-7 and 125.11. The purpose of the following amendment to 33 CFR 125.37 (a) is to postpone the effective date from "January 1, 1952" to "April 1, 1952" because it has been determined that the average percentage of crews holding identification credentials is approximately 40 percent. The regulation designated 33 CFR 125.37, was published in the FEDERAL REGISTER dated August 21, 1951 (16 F. R. 8273), and requires identification credentials for crews on towing vessels or barges engaged in trade on the Great Lakes or the western rivers. Since the security interests of the United States called for the aforesaid application of the provisions of 33 CFR 6.10-5 at the earliest practicable date and because of the national emergency declared by the President, it is found that compliance with the notice of proposed rule making, public rule making procedure thereon, and effective date requirements of the Administrative Procedure Act is impracticable and contrary to the public interest.

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Executive Order 10173, as amended by Executive Order 10277, § 125.37 (a) is amended by changing the effective date from "January 1, 1952" to "April 1, 1952" so that it will read as follows:

§ 125.37 *Requirements for credentials; towing vessels or barges engaged in trade on the Great Lakes or the western rivers.* (a) On and after April 1, 1952, all persons desiring access to towing vessels or barges engaged in trade on the Great Lakes or the western rivers by reason of employment as masters or members of the crews of such vessels shall be required to be in possession of one of the identification credentials listed in § 125.11, and the master, operator, or owners of such vessels shall deny access to such vessels to any such persons who are not in possession of one of such identification credentials.

(40 Stat. 220, as amended; 50 U. S. S. 191. E. O. 10173, Oct. 18, 1950, 15 F. R. 7005; 3 CFR, 1950 Supp., E. O. 10277, Aug. 1, 1951, 16 F. R. 7537)

Dated: December 29, 1951.

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

[F. R. Doc. 52-58; Filed, Jan. 3, 1952; 8:49 a. m., 17 F. R. 120—1/4/52.]

CG-169

Chapter I—Coast Guard, Department of the Treasury

Subchapter D—Navigation Requirements for Certain Inland Waters

[CGFR 51-64]

PART 82—BOUNDARY LINES OF INLAND WATERS

SOUTHEASTERN ALASKA

In response to petitions received from various individuals and organizations in the maritime industry in Alaska or actively interested in it, a public hearing was held in Juneau, Alaska, on October 24, 1951, for the purpose of receiving comments on and discussing matters pertaining to the maritime industry which are peculiar to Alaska, and over which the Coast Guard has jurisdiction. A notice of this hearing was published in the FEDERAL REGISTER dated October 12, 1951, 16 F. R. 10465, and the Commander, 17th Coast Guard District, sent out invitations to known interested parties and press releases to local newspapers and radio stations requesting all persons interested in the marine industry to attend this hearing and discuss, among other things, the classification of the waters of southeastern Alaska for navigation purposes.

The record of the public hearing held by the Commander, 17th Coast Guard District, at Juneau, Alaska, on October 24, 1951, indicates that considerable differences of opinion exist with respect to the application of the general rule for determining inland waters from the high seas in 33 CFR 82.2 in southeastern Alaska. The record also indicates that interested persons feel that a definite rule defining the inland waters and the high seas for the purpose of administering the pilot rules would be very helpful in determining what pilot rules must be followed.

The purpose of the following new regulation, designated 33 CFR 82.275, is to establish a definite line of demarkation between the inland waters and the high seas in southeastern Alaska. The regulation shall become effective 30 days after the date of publication of this document in the FEDERAL REGISTER and any person who may feel aggrieved by the promulgation of this regulation may appeal therefrom to the Commandant (CMC), United States Coast Guard, Washington 25, D. C., in writing within 30 days from date of publication of this document in the FEDERAL REGISTER. The written appeal shall be presented in triplicate and shall include data and views as to why the regulations shall not be promulgated or suggestions covering any changes therein considered desirable.

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Treasury Department Order No. 120, dated July 31, 1950 (15 F. R. 6521), and in compliance with the authorities cited below, the following regulation is prescribed which shall become effective 30 days after the date of publication of this document in the FEDERAL REGISTER:

Part 82 is amended by adding a new center heading "Alaska" and a new § 82.275, reading as follows:

§ 82.275 *Bays, sounds, straits and inlets on the coast of southeastern Alaska between Cape Spencer Light Station and Sitklan Island.* A line

drawn from Cape Spencer Light Station due south to a point of intersection which is due west of the southernmost extremity of Cape Cross; thence to Cape Edgecumbe Lighthouse; thence through Cape Bartolome Lighthouse and extended to a point of intersection which is due west of Cape Muzon Lighthouse; thence due east to Cape Muzon Lighthouse; thence to a point which is one mile, 180° true from Cape Chacon Lighthouse; thence to Barren Island Lighthouse; thence to Lord Rock Lighthouse; thence to the southernmost extremity of Garnet Point, Kanagunut Island; thence to the southeasternmost extremity of Island Point, Sitklan Island. A line drawn from the northeasternmost extremity of Point Mansfield, Sitklan Island 040° true, to where it intersects the mainland.

(28 Stat. 672, as amended; 33 U. S. C. 151)

Dated: January 15, 1952.

[SEAL] MERLIN O'NEILL,
Vice Admiral, U. S. Coast Guard.
Commandant.

[F. R. Doc. 52-936; Filed, Jan. 23, 1952; 8:50 a. m., 17 F. R. 717—1/24/52.]

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

Subchapter A—Procedures Applicable to the Public

[CGFR 51-63]

PART 2—VESSEL INSPECTIONS

SUBPART 2.01—INSPECTING AND CERTIFICATING OF VESSELS

VESSEL INSPECTIONS IN ALASKA

In response to petitions received from various individuals and organizations in the maritime industry in Alaska or actively interested in it, a public hearing was held in Juneau, Alaska, on October 24, 1951, for the purpose of receiving comments on and discussing matters pertaining to the maritime industry which are peculiar to Alaska, and over which the Coast Guard has jurisdiction. A notice of this hearing was published in the FEDERAL REGISTER dated October 12, 1951, 16 F. R. 10465, and the Commander, 17th Coast Guard District, sent out invitations to known interested parties and press releases to local newspapers and radio stations requesting all persons interested in the marine industry to attend this hearing and discuss, among other things, the application and administration of marine inspection requirements to the merchant marine in Alaska.

The record of the public hearing held by the Commander, 17th Coast Guard District, at Juneau, Alaska, on October 24, 1951, indicates that considerable differences of opinion exist with respect to the administrative classification of the waters of southeastern Alaska for vessel inspection purposes and to the holding that the act of May 28, 1908, as amended (Seagoing Barge Act; 35 Stat. 428, 46 U. S. C. 395-398), applies to nonself-propelled vessels navigating the waters of southeastern Alaska.

The purpose of the following new regulation, designated 46 CFR 2.01-80, is to classify certain waters of southeastern Alaska as lakes, bays, and sounds for vessel inspection purposes, which will have a two-fold effect: first, it will require that vessels subject to inspection and operating on voyages exclusively on such waters shall be inspected and certificated under the vessel inspection laws and regulations which are applicable to vessels navigating bays, sounds, and lakes other than the Great Lakes; and, second, it will operate to classify nonself-propelled vessels navigating exclusively on such waters as inland barges and thus exempt such barges from the requirements of inspection under the Seagoing Barge Act of May 28, 1908, as amended (46 U. S. C. 395-398).

The regulation, designated 46 CFR 2.01-80, shall become effective 30 days after date of publication of this document in the FEDERAL REGISTER and any person who may feel aggrieved by the promulgation of this regulation may appeal therefrom to the Commandant (CMC), United States Coast Guard, Washington 25, D. C. in writing within 30 days from date of publication of this document in the Federal Register. The written appeal shall be presented in triplicate and shall include data and views as to why the regulation shall not be promulgated or suggestions covering any changes therein considered desirable.

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Treasury Department Order No. 120, dated July 31, 1950, (15 F. R. 6521), and in compliance with the authorities cited below, the following regulation is prescribed, and Part 2 is amended by adding a new § 2.01-80 reading as follows:

§ 2.01-80 *Vessel inspections in Alaska.* (a) The waters of southeastern Alaska, inside of the general trend of the shore from Cape Spencer, southeasterly to Cape Muzon, and thence easterly to Sitklan Island, shall be considered as bays, sounds, and lakes other than the Great Lakes, for the purpose of administering the vessel inspection laws and applicable regulations in this chapter.

(R. S. 4403 and 4462, as amended; 46 U. S. C. 372, 416)

Dated: January 17, 1952.

[SEAL] MERLIN O'NEILL,
Vice Admiral, U. S. Coast Guard,
Commandant.

[F. R. Doc. 52-937; Filed, Jan. 23, 1952; 8:50 a. m., 17 F. R. 734—1/24/52.]

Equipment Accepted by the Commandant

ARTICLES OF SHIPS' STORES AND SUPPLIES CERTIFIED

Articles of Ships' Stores and supplies certificated and canceled from December 26, 1951, to January 25, 1952, inclusive, for use on board vessels in accordance with the provisions of part 147 of the regulations governing "Explosives and Other Dangerous Articles on Board Vessels:"

Standard Oil Co., 910 South Michigan Avenue, Chicago 80, Ill., Certificate No. 124, dated January 22, 1952, "Standard Liquid Gloss."

Standard Oil Co., 910 South Michigan Avenue, Chicago 80, Ill., Certificate No. 125, dated January 22, 1952, "Standard Liquid Wax."

Standard Oil Co., 910 South Michigan Avenue, Chicago 80, Ill., Certificate No. 261, dated January 22, 1952, "Standard Insect Spray with DDT."

Standard Oil Co., 910 South Michigan Avenue, Chicago 80, Ill., Certificate No. 265, dated January 22, 1952, "Standard Aerosol Insect Killer."

Dunham Manufacturing Co., 840 North Michigan Avenue, Chicago 11, Ill., Certificate No. 341, dated January 14, 1952, "PD-5."

CANCELED

Standard Oil Co. (Indiana), 910 South Michigan Avenue, Chicago 80, Ill., Certificate No. 124, dated January 22, 1952, "Semdac Flor Glaze."

Standard Oil Co. (Indiana), 910 South Michigan Avenue, Chicago 80, Ill., Certificate No. 125, dated January 22, 1952, "Semdac Liquid Gloss."

Standard Oil Co. (Indiana), 910 South Michigan Avenue, Chicago 80, Ill., Certificate No. 261, dated January 22, 1952, "Superla Insect Spray with DDT."

Standard Oil Co. (Indiana), 910 South Michigan Avenue, Chicago 80, Ill., Certificate No. 265, dated January 22, 1952, "Superla Aerosol Insect Killer."

Motor Chemical Corp., 840 North Michigan Avenue, Chicago 11, Ill., Certificate No. 326, dated January 23, 1952, "PD-5."

AFFIDAVITS

The following affidavits were accepted during the period from December 15, 1951 to January 15, 1952:

Christy Corp., Sturgeon Bay, Wis. Valves.

Kuhns Brothers Co., 1800 McCall Street, Dayton 1, Ohio. Fittings.

Terco Equipment Co., 939 Howard Street, San Francisco 3, Calif. Fittings, Valves and Flanges.

Todd Shipyards Corp. (San Francisco Division), Foot of Main Street, Alameda, Calif. Valves and Fittings.

FUSIBLE PLUGS

The Marine Engineering Regulations and Material Specifications require that manufacturers submit samples from each heat of fusible plugs to the Commandant 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 December 15, 1951, to January 15, 1952, is as follows:

The Lunkenheimer Co., P. O. Box 360, Annex Station, Cincinnati 14, Ohio. Heat No. 423

H. B. Sherman Mfg., Co., Battle Creek, Mich. Heat Nos. 749 through 752, 754 through 757, and 759 through 763.

American Machine & Engineering Co., 1411 Reedsdale Street, N. S., Pittsburgh, Pa. Heat No. 16.

Merchant Marine Personnel Statistics

INVESTIGATING UNITS

Coast Guard Merchant Marine Investigating Units and Merchant Marine Details investigated a total of 760 cases during the month of November 1951. From this number, hearings before examiners resulted involving 12 officers and 45 unlicensed men. In the case of officers, no license was revoked, seven were suspended without probation, two were suspended with probation granted, two licenses were voluntarily surrendered, one was dismissed after hearing and no hearings were closed with admonitions. Of the unlicensed personnel, 4 certificates were revoked, 8 were suspended without probation, 22 were suspended with probation granted, 9 were voluntarily surrendered, 4 were closed with an admonition and 4 were dismissed after hearing.

ORIGINAL SEAMEN'S DOCUMENTS NOVEMBER 1951

Type of document	Atlantic coast	Gulf coast	Pacific coast	Great Lakes and rivers	Total
Staff officer	100	14	39	1	154
Continuous discharge book	2	17			19
Merchant mariner's documents	1,707	567	1,049	964	4,287
AB any waters unlimited	102	21	55	13	191
AB any waters, 12 months	48	7	40	28	123
AB Great Lakes, 18 months	3	1		10	14
AB tugs and towboats, any waters			1		1
AB bays and sounds [1]	1				1
AB seagoing barges					0
Lifeboatman	143	17	102	21	283
Q. M. E. D.	143	32	93	123	391
Radio operators	5	1	2		8
Certificate of service	1,663	545	1,006	873	4,087
Tankerman	4	2	5	40	51

[1] 12 months; vessels 500 gross tons or under, not carrying passengers.

NOTE.—The last 11 categories indicate number of endorsements made on United States merchant mariner's documents.

WAIVER OF MANNING REQUIREMENTS NOVEMBER, 1951

Waivers	Atlantic coast	Gulf coast	Pacific coast	Great Lakes	Total
Deck officers substituted for higher ratings	1				1
Engineer officers substituted for higher ratings	6		1	4	11
O. S. for AB	298	80	38	8	424
Wiper or coalpassers for Q. M. E. D.	137	26	42	23	228
Total waivers	442	105	81	35	664
Number of vessels	207	66	45	19	337

NOTE.—In addition, individual waivers were granted to permit the employment of eight able seamen holding certificates for "any waters—12 months" in excess of the 25 percent authorized by statute.

MERCHANT MARINE OFFICER LICENSES ISSUED NOVEMBER 1951

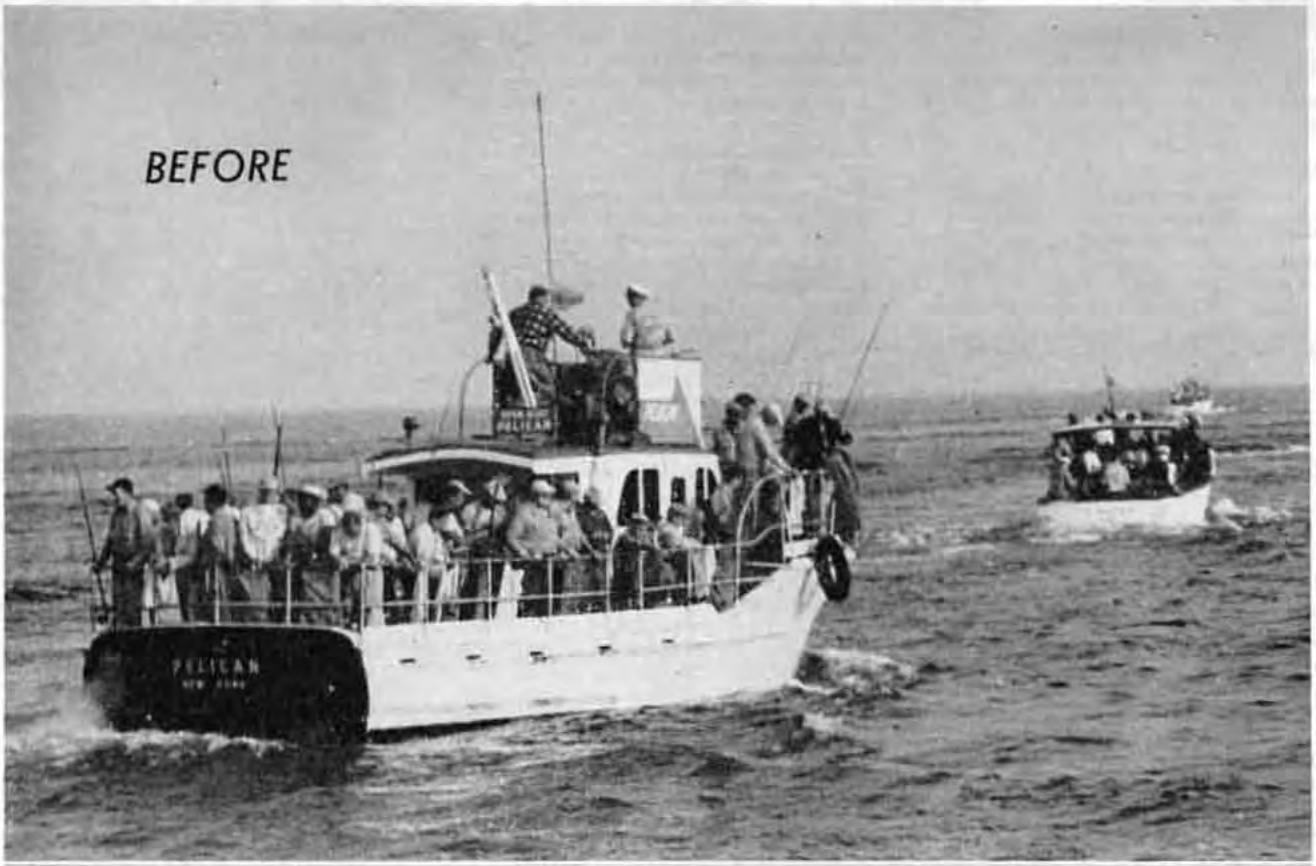
DECK

	Original	Renewal
STEAM		
Chief Engineer:		
Unlimited	29	197
Limited	3	85
First Assistant Engineer:		
Unlimited	35	73
Limited	2	6
Second Assistant Engineer:		
Unlimited	39	75
Limited		
Third Assistant Engineer:		
Unlimited	50	83
Limited	1	
MOTOR		
Chief Engineer:		
Unlimited	3	54
Limited	14	54
First Assistant Engineer:		
Unlimited	2	8
Limited	5	3
Second Assistant Engineer:		
Unlimited	1	10
Limited	1	1
Third Assistant Engineer:		
Unlimited	3	100
Limited	1	
Chief Engineer:		
Uninspected Vessels	10	5
Assistant Engineer:		
Uninspected Vessels	2	
Total	201	754
Grand total	955	

ENGINEER

	Original	Renewal
Master:		
Ocean	22	137
Coastwise	1	8
Great Lakes		5
B. S. & L.	3	35
Rivers	4	24
Radio officer licenses issued	42	
Chief mate:		
Ocean	28	51
Coastwise		2
Mate:		
Great Lakes		
B. S. & L.	1	3
Rivers	3	9
Second mate:		
Ocean	32	66
Coastwise		
Third mate:		
Ocean	26	45
Coastwise		
Pilots:		
Great Lakes	2	4
B. S. & L.	59	113
Rivers	39	59
Master:		
Uninspected vessels	1	6
Mate:		
Uninspected vessels	4	1
Total	258	568
Grand total	826	

U. S. GOVERNMENT PRINTING OFFICE: 1952


BEFORE
PELICAN


AFTER
45 LIVES LOST
PELICAN