PROCEEDINGS OF THE
MERCHANT MARINE COUNCIL
UNITED STATES COAST GUARD

Vol. 4 January 1947 No. 1

Proceedings of the

MERCHANT MARINE COUNCIL

Published monthly at Coast Guard Headquarters, under the auspices of the Merchant Marine Council, in the interest of safety at sea. There are no restrictions on the republication of material, except the cover picture appearing in this issue

CONTENTS

COUNCIL ACTIVITIES

The Merchant Marine Council's recommendations on the proposed changes in regulations which were the subject of the public hearing held on October 22, 1946, are being considered by the Commandant and most of the revised regulations will be published in the Federal Register some time this month. These regulations will be reprinted in the Proceedings next month.

The revised regulations for the construction or alteration of passenger vessels of 100 gross tons and over of the United States, propelled by machinery, give greater latitude in the construction of new vessels or in making alterations in existing vessels and state more definitely the safety and fire prevention characteristics which will meet the approval of the Commandant. These regulations are for the guidance of builders so that the vessels, when built or altered, as the case may be, can be navigated with safety to those on board.

The smoke detecting requirements in the amendments to sections 61.17 (c), 77.17 (c), 95.16 (c) and 114.17 (c) in the General Rules and Regulations for Vessel Inspection for passenger and cargo vessels navigating ocean and coastwise waters, Great Lakes, Bays, Sounds, and Lakes other than the Great Lakes, and rivers will permit a greater amount of variations in the installations of smoke detecting systems on merchant vessels and yet provide adequate means for detecting fires.

The procedure for numbering of undocumented vessels will be revised by canceling the present section 29.8, entitled "Procedure relating to numbering of motorboats," and issuing in its stead new regulations containing similar requirements on 11 sections. The tentative headings for these sections are:

Basis and purpose of numbering regulations.
Vessels required to be numbered.
Vessels not required to be numbered.
Application for certificate of award of number.
Documentary evidence of ownership.
Award of number.
Certificate of award of number kept on board undocumented vessel.
Sales of undocumented vessels to aliens.
Procedure upon change of permanent residence.
Number assigned required on bows of undocumented vessel.

The major change in the regulations is to permit the Officer in Charge, Marine Inspection, of the Coast Guard upon receipt of the application together with proof of ownership, to issue a letter and award a number which will authorize the vessel to be operated pending the issuance of the certificate of award of number.

The Coast Guard District Commander will issue the certificate of award of number in all instances except where he has designated and au-

thorized officers or employees under his command to issue such certificates in his behalf.

A new regulation has been added which states that the new owner of an undocumented vessel may operate such vessel without penalty for failure to have such certificate of award of number on board if the latter issued by the Officer in Charge, Marine Inspection, is carried and produced when necessary for identification.

Another change in the regulations provides that vessels sold as surplus property by the United States Maritime Commission or the War Shipping Administration may be numbered when there is furnished the successful bidder a sale order or certificate of delivery of vessel, which shall be accepted as sufficient evidence of ownership.

The proposed changes in the regulations for licensing and certificating of merchant marine personnel will be published in the near future. These regulations will probably be published with the editorial rearrangement of all the regulations on licensing and certificating which will place all regulations in one subchapter, instead of being repeated in five or more as at present.

The proposed regulations for butane and propane as cooking gas on tank vessels was not adopted. The Council decided to consider this subject further and obtain the views of the Rules Committee of the American Petroleum Institute and others. It is proposed to have this subject on the agenda for the next meeting of the Council.

The use of automatic electric water lights on tank vessels and tank barges was postponed again for 6 months until July 1, 1947, because of the shortage of critical materials necessary in their manufacture.

Consideration is being given to permitting continuing in use boilers, pressure vessels, machinery, piping, electrical and other installations, including lifesaving, fire-fighting, and other safety equipment which has been installed on vessels during the Unlimited National Emergency declared by the President on May 27, 1941, and prior to the termination of Title V of the Second War Powers Act, which do not fully meet the detailed requirements of the regulations for passenger, cargo, and tank vessels. It is proposed that this equipment may be continued in service if found to be satisfactory by the Commandant for the purpose intended. In each instance prior to final action by the Commandant, the Officer in Charge, Marine Inspection, will notify Coast Guard headquarters of the facts in the case, together with recommendations relative to the equipment's suitability for retention.

Use of DDT on Shipboard[1]

In order to suppress insect infestation on vessels, continuous control measures are necessary while at sea as well as in port.

To control insects requires unceasing activity. Simple cleanliness with frequent and abundant use of plain soap and hot water is necessary. While there are many chemical compounds that will kill insects, one must not be overdependent on them. The occasional use of the marvelous new insecticides that can be purchased today is not a cure-all that will banish all insect problems forever. Efficient insect control still demands clean-up work, as well as the application of insecticides. The neglect of routine measures of sanitary disposal of human waste, garbage, and trash will present insect problems which cannot be banished by the use of insecticides alone.

While many poisonous compounds can be used to destroy insects, dichloro-diphenyl-trichloroethane, popularly known as DDT, has the remarkable ability to kill a wide variety of insect pests, even when it is applied in very small quantities. It is unique in that it will kill many insects that walk on it weeks and months after it has been applied to a surface.

Most insecticide sprays are effective for only a few minutes after they are applied. Pyrethrum is a very good insecticide and it is a constituent of many SPACE SPRAYS because it rids a space of insects quickly. A large percentage of the insects hit by such a spray are incapacitated in a very short time. But within a very few minutes the spray has settled to the deck, leaked out through cracks in the door, or been changed chemically by exposure to air and sunlight. Other materials such as sodium fluoride may be dusted on the deck or in cracks and it may remain effective as long as it stays there. But under normal conditions such dusts are soon mopped up or swept away.

On the other hand when DDT is sprayed or dusted on bulkheads, deckheads, decks, and other surfaces, it leaves a tenacious deposit or residue of tiny DDT crystals. If cockroaches, flies, lice, mosquitoes, or fleas walk over or rest on this deposit long enough to obtain a killing dose of DDT, they will be killed. It is this RESIDUAL EFFECT that withstands a remarkable amount of jarring, weathering, and even washing, that is the great advantage of DDT over older types of insecticides.

[1] Excerpted from a circular published by Public Health Service.

PRECAUTIONS

DDT is deadly to most insects found on shipboard, but it is not harmful to man WHEN IT IS USED AS RECOMMENDED. Materials that kill insects necessarily must be poisonous, but DDT is definitely less poisonous than paris green and sodium fluoride, long used as insecticides. Nevertheless, the person who uses DDT must take certain precautions to avoid harmful effects to himself or others. Because it is poisonous and requires radically different methods of application, special knowledge and training are necessary to take full advantage of the potential savings in labor and materials that it offers. The materials in which DDT can be dissolved often are more dangerous to man than DDT itself.

Tests have been made by exposing animals in rooms that contained concentrations of DDT higher than those recommended for use in sprays or dusts as it is used against insects, and these animals have not been harmed. However, it is NOT safe to be careless and expose oneself to abnormally high concentrations of DDT. This will not occur if the standardized directions are followed.

Extra precautions should be taken in galleys, messrooms, and food lockers. All food, unpackaged goods, and cooking utensils should be removed while DDT is being sprayed or dusted. This precaution is not necessary when painting screens with DDT. All DDT containers should be clearly labelled "POISON" and be stored in the paint locker.

If DDT is swallowed accidentally, the victim should be required to drink some MUSTARD WATER IMMEDIATELY. It is made by adding one tablespoonful of mustard to one glass of warm water. Or, stick the finger down the throat. Either causes vomiting which empties the stomach. If a physician can be obtained, he should be called immediately. If not, and the ship is at sea, medical advice should be obtained by radio.

DDT in dust form is not absorbed into the body through the skin unless grease, oil, or greasy skin lotion is also present on the skin. As a precaution, though, DDT powder should not be allowed to remain on the skin. Excessive inhalation of the dust should be avoided. If it is possible to purchase colored DDT powder, this should be done. If the diluted powder is not colored, it may be mistaken for flour or other foodstuffs; therefore, it must be carefully labelled and NEVER be stored with foods.

When DDT is in an oil solution, it is readily absorbed into the body

through the skin. For this reason DDT oil solutions should not be allowed to remain on the skin or to saturate the clothing. If some DDT solution does get on the skin, it should be washed off with warm, soapy water. Clothing should be changed promptly if oil solution or emulsion concentrate is spilled on it. When spraying, the mist should not be inhaled and food should not be contaminated with it. A DDT oil solution should NOT be applied to the skin or to the coats of animals. Some of the solvents used in making DDT sprays may irritate the skin and cause harmful results if handled carelessly. There will be no ill effects from using DDT if the precautions that are described herein are followed.

A DDT spraying operation on shipboard usually is a good-sized job. For that reason, the operator should wear a respirator and goggles to prevent inhaling the fumes and to prevent eye irritation. A wide-brimmed hat, elbow-length rubber gloves, and clothing that will protect arms and shoulders should be worn. If the operator does not wear rubber gloves, he should wash his hands and arms frequently in a strong soap solution. Clean rags should be at hand to wipe off any spray that may collect on the face. Clothing should be changed frequently enough that it does not become saturated with the spray. Greaseless skin lotions may be used to prevent skin irritation due to xylene and other solvents.

AVAILABLE FORMS

DDT is offered for sale to the public in a great variety of forms. These preparations contain DDT in varying amounts. The labels on the containers should be read carefully before making a purchase to be sure that the material contains enough DDT to be effective. An aerosol should contain 3 percent DDT, a residual type spray should contain 5 percent DDT, and a dusting powder should contain 10 percent DDT to be effective.

No mention is made of DDT insect powder in the listing because it does not present a fire hazard nor a poison hazard if used properly.

The following listed DDT solutions are certified by the United States Coast Guard for use as articles of stores on shipboard. Undoubtedly, similar products of other manufacturers will be certified from time to time. The certification does not pass upon the efficacy of a product, but is predicated upon its hazard in use. In the case of DDT solutions, the certified products have flash points above 150° F. and are not hazardous as poisons when used properly:

Name of material	DDT content
	Percent
Bridgeport Brass Aer-A-Sol Insecticide Bomb (Bridgeport Brass Co., Bridgeport 2, Conn.).	3
Hockwald's Insecticide Spray—DDT Residual Effect (Hockwald Chemical Co., 135 Mississippi St., San Francisco).	5
Insect-O-Blitz (Industrial Management Corp., Aerosol Insecticide Division, P. O. Box 152, Valparaiso, Ind.).	3
Killbug	1
Residol (West Disinfecting Co., 42-16 West St., Long Island City, N. Y.).	5
Shell DDT Ship Spray No. 2	5.0
Shell Ship-Tox (Shell Oil Co., Inc., Suite 1120 Shoreham Bldg., Washington 5, D. C.).	5.7

Oil Solutions for Residual Sprays.—DDT is soluble in a number of the lighter oils, and it is offered for sale dissolved in highly refined, deodorized white kerosene, or in other commercial solvents regularly used in other fly sprays. Most of these sprays contain 5 PERCENT DDT. OIL SOLUTIONS SHOULD CONTAIN 5 PERCENT DDT TO BE EFFECTIVE AS A RESIDUAL SPRAY IN A WIDE VARIETY OF USES. Preparations on which labels fail to state the definite concentration of DDT should not be purchased. CAUTION: The Navigation Statutes of the United States make it unlawful knowingly to transport, carry, stow, or use articles of ships' stores and supplies of a dangerous nature on board vessels except as permitted by the regulations established thereunder. The United States Coast Guard, which is charged with the enforcement of Navigation Statutes, has published regulations entitled "Explosives or Other Dangerous Articles on Board Vessels" setting forth conditions under which DDT preparations may be certified for use on shipboard. All DDT preparations, whether oil solutions or emulsion concentrations, must meet these requirements. Carbon tetrachloride should NOT be added to an insecticide to raise its flash point and to reduce its flammability because of the extremely poisonous nature of this material when it is dispersed into the air of a compartment.

DDT in Fly Sprays.—Many manufacturers of well-known fly sprays are adding small amounts of DDT, ½ to 1 percent, to their products. This is done to insure a greater percentage of kill. These weak solutions are "space sprays" when sprayed into the air to form a poisonous mist, and they are NOT suitable for use to deposit residual DDT on surfaces.

Aerosols.—The aerosol bombs which are available, such as those included in the list herein contain an insecticide dissolved in a gas that has been liquefied under high pressure. When this liquefied gas is released by opening the valve on the "bomb," the gas escapes into the air and carries the insecticide with it. Because of the very fine particles produced, this gas is more effective as a space spray than is the same insecticide dispersed through an ordinary mist space spray.

As in the case of the "Fly Sprays," pyrethrum is the primary active ingredient that produces fast knockdown. Other materials such as DDT may be added to insure a greater percentage of kill. For this purpose 3 percent of DDT has been found to be desirable. However, it must be borne in mind that THESE AEROSOLS ARE NOT EFFECTIVE AS RESIDUAL SPRAYS! They should be used only as space sprays and they are very effective for that purpose.

BE SURE TO DISTINGUISH BETWEEN "SPACE SPRAYS" AND "RESIDUAL SPRAYS."

The greatest value of DDT is obtained when it is used as a RESIDUAL SPRAY.

Suspensions.—A DDT powder containing a chemical which permits the DDT particles to be mixed readily with water may also be used as a residual spray. In such a mixture, called a suspension, small particles of DDT are distributed evenly throughout the liquid.

The 5 percent DDT concentration for a spray is made from such a DDT powder merely by diluting it with water. The amount of water to be added depends upon the concentration of DDT in the commercial product. The manufacturer's label on the container should supply this information.

The DDT suspension can be sprayed on surfaces. It is safe to use because it presents no fire hazard. There is no odor, and it is harmless when applied to the skin or to the coats of animals. After it has been applied to a surface and the water has evaporated, small flecks of both DDT and the carrier remain on the sprayed surface. It will make white spots on dark surfaces such as dark-stained furniture, dark-colored paints, varnished surfaces and window glass. Where there will be no objection to spotting, it is very effective and easy to apply.

Emulsions.—DDT will not dissolve in water, but it will dissolve easily in certain organic solvents. A concentrated solution can be made by using one of those solvents. They may be diluted with water when they are to be used if a chemical called an emulsifier is added. The mixture of DDT, solvent, and emulsifier is called an emulsion concentrate. It is ready to use when mixed with water according to the manufacturer's label on the

container. An emulsifier is added to the concentrated DDT solution so that the solution will break up into fine droplets when it is mixed with water. These are dispersed throughout the water, giving it a milky appearance. If properly made it is a stable emulsion. It is made ready for use merely by adding clean water. Any clean water may be used to dilute the emulsion concentrate but sea water should not be used unless the printed directions give specific permission, for rather few formulae will work with sea water. Foaming will be avoided if the emulsion concentrate is added to the water. On standing, the diluted emulsion may have a creamy layer on its surface. It only needs to be stirred thoroughly before it is used in the sprayer.

The DDT emulsion concentrate as purchased and without any water added to it must not have a flash point below 150° F.

Commercial emulsion concentrates usually contain 20 to 35 percent DDT. The amount of water that should be added to produce a 5 percent residual spray will depend upon the concentration of DDT in the emulsion concentrate. The directions on the manufacturer's label should be followed to produce the 5 percent spray.

Powders (or Dusts).—Dry mixtures of DDT are available for applying as a powder. They contain 5 to 10 percent DDT diluted with some powder such as talc or pyrophyllite. The diluting powder serves as a carrier. The powder should contain 10 percent DDT to be effective.

EQUIPMENT FOR APPLICATION

The use of DDT as a RESIDUAL SPRAY is an entirely new method of insect control. It should NOT be sprayed into the air in the way some fly sprays are used. The purpose of RESIDUAL SPRAYING is to coat a surface with a fine layer of DDT because of its long-lasting killing effect on insects.

It is necessary to paint on the liquid or to apply it as a coarse wet spray so that as much DDT as possible will remain on the treated surface and will not blow away as a mist. For best results, the sprayed surface should be as wet as possible without letting the spray liquid run down the bulkheads. Residual spraying should be done in swaths from deckhead to deck, etc., with the operator facing his work. He should step sideways the width of the swath after its completion and continue in this manner. The deckhead, etc., should be sprayed in the same way, care being taken to keep the nozzle well away from the operator's face in order to minimize the amount of spray that would fall on him.

An ordinary household insecticide sprayer can be used to apply DDT spray but it is quite a tiresome job. It also is difficult to apply an even coat of DDT where a small plunger type hand sprayer is used. The larger 2½- to 4-gallon air-pressure garden-type hand sprayer is much better to use on shipboard. If the latter type sprayer is employed, the air pressure in it will decrease as it is used with a consequent reduction in the amount of DDT being applied. If a 4-gallon cylindrical sprayer is used, 60 strokes of the air pump at the beginning of work when it contains about 3½ gallons of the emulsion (or solution) will produce a pressure of approximately 50 pounds per square inch. An adequate pressure can be maintained by pumping 30 additional strokes after the first four minutes of spraying and then continuing until the tank is empty.

The spray gun must be equipped throughout with oil-resistant hose, washers, and gaskets. DDT must not remain in a spray gun or it will rust the metal, and decompose the hose, washers, and gaskets. After a spray gun has been used, it should be washed out, cleaned, and dried thoroughly. If this procedure is not carried out, the spray tank will rust, the gaskets and washers will decompose, and the nozzle will clog.

For spraying large areas, such as a galley or a dry storeroom, a spray gun is recommended. For shipboard work, the following changes should be made to these spray guns:

(1) Insert a petcock in the cover. This is to be used as a bleed valve to release air pressure.

(2) All gaskets, washers, hose, and all other parts that usually are made of ordinary rubber MUST be made of oil-resistant, synthetic rubber.

(3) Provide pressure, oil-resistant, synthetic rubber hose at least 4 feet long. One end of this hose should be attached SECURELY to the tank and the other end to a brass extension rod 2 feet long. At the tip of this rod an angle fog nozzle should be attached. The nozzle should be able to produce a coarse, wet spray. A flat fan-shaped spray pattern is desirable. The nozzle should be equipped with a strainer to prevent its clogging.

(4) The shoulder strap should be made of durable canvas or leather, with snap ends. Weld (or braze) heavy wire rings to the tank so that the carrying strap can be attached securely and nothing can break loose.

(5) Weld (or braze) a cup at the bottom of the tank and a clip near the top of the tank to hold the brass extension rod.

(6) Provide a box of repair parts for pressure type spray gun that has been purchased.

A new paint brush, 4 to 6 inches wide, should be used to apply DDT to screens, shelves, ropes, electric light cords, and special surfaces to kill insects that alight on them. Spraying screens wastes DDT because much of it passes through the mesh. A heavy coat should be applied to screens because many insects either rest on the mesh or pass through them. DDT loses its killing power more readily from exposed screens than from inside protected screens.

A hand-operated dust gun can be used to force DDT powder into cracks and crevices or to distribute it generally over a surface. The 2-ounce can is useful for distributing small quantities of the powder in lice control and in treating dogs for fleas and ticks. DDT powders may contain an added material such as pyrethrum for a quick knockdown—similar to its use in sprays—otherwise a considerable time may elapse before the insects are killed.

CONDITIONS AFFECTING

DDT has long-lasting residual properties. Insects have been killed by it months after it has been applied, depending upon local conditions. Its killing property varies with different types of surfaces, with the dosage used, and with many other conditions. When applied to newly painted surfaces, the effect is lost rapidly. Dust and grease deposits covering treated surfaces (such as in the galley) reduce the length of effectiveness. Vibrations cause a flaking off of the DDT deposit, and shorten the period of residual effect.

The DDT residue usually will remain effective until dust or deposited salt spray covers it, making it impossible for the insects to touch the DDT to receive a toxic dose. Dusty or dirty surfaces should be cleaned before DDT is applied. Bulkheads, screens, and other surfaces treated with liquid or dust forms of DDT for residual effect should not be washed unless absolutely necessary. Surfaces washed or wetted repeatedly will require more frequent application of DDT.

DIRECTIONS FOR USING

Where appearance is a factor, care should be used in wetting surfaces with DDT spray to avoid spotting. Dark-stained furniture should be covered before spraying is begun. Avoid depositing spray on ports and windows. Spotting can be removed from furniture and dark painted or varnished surfaces with furniture polish liberally applied, then wiped with a clean, dry cloth. Light wall surfaces should be wiped with a clean, dry rag to remove dust before spraying. Wall

cleaning or painting should be done before DDT is applied, otherwise its period of effectiveness will be greatly shortened. Do not touch a sprayed surface while it still is wet. Streaking will result, and this will show as a white smudge when the spray has dried.

Cockroaches.—DDT will control cockroaches effectively, and it is less poisonous to human beings and pets than sodium fluoride which has been a constituent of many roach powders. Both the 10 percent DDT powder and the 5 percent DDT emulsion (or solution) spray should be used. The emulsion should be sprayed into their favorite hiding places, such as in cracks, behind objects, behind and under drawers, and all cracks and crevices WHEREVER ROACHES HIDE. This will bring many of them out into the open and will kill them. Apply the spray to the undersides of tables, shelves, sinks, and to vertical surfaces where most of the cockroaches are found. Then the dust applicator should be used to deposit the powder in the same places where the spray had been applied. Whenever the powder is swept away fresh powder should replace it. Food, vegetables, dishes, and cooking utensils must either be covered or be moved before dusting or spraying is begun.

Since roaches are great travelers and roach infestation often is widespread on a ship, best results will be obtained if the whole ship is attacked simultaneously. If only one area is treated with DDT, many of the surviving roaches will scatter into other areas and it may seem as if the roach problem has been made worse than it was before. To prevent this from happening, it is better to begin roach control of a badly infested place by starting work outside it and moving into it. This method of attack will prevent the roaches from scattering.

One application of DDT is not sufficient. Some roaches escape killing the first time and eggs hatch. More roaches are brought in with food stores constantly. Roach control to be effective must be carried on constantly. The above procedure will have to be repeated and repeated.

Flies.—The principal resting place of flies in spaces where food is prepared or served should be covered with a 5 percent DDT spray. They will include the galleys, sculleries, messrooms, storerooms, water closet spaces, garbage racks, etc. In galleys and messrooms flies will enter through an open door, but if these compartments have received a thorough individual treatment with DDT, the flies will be dead before the next meal. At night, flies prefer to rest on the deckhead, around cracks and crevices, along edges of the deckhead, bulkheads, gangways, and furniture. All of these places should be sprayed. Electric cords, ropes, and screens should be painted with the DDT solution (or emulsion). When the ship is in port spraying the garbage cans and garbage room will help to reduce the fly problem. Keep all food containers covered after spraying a compartment. Flies fall into them as the DDT takes effect.

Bedbugs.—DDT is probably the best insecticide that has been developed for use against bedbugs. When a 5 percent DDT spray is applied properly to mattresses and berth frames, a single treatment will make them bug-proof for months.

Remove or cover all articles made of rubber or leather that are in the compartment that is to be treated with DDT.

Wear a respirator and goggles. The risk of DDT poisoning is not great, but the xylene (in the emulsion) is irritating to the eyes and the mucuous membranes. Close all of the ports during actual spraying if this is necessary to prevent wind from taking the spray stream out of control. Immediately after spraying, all ports should be opened. Prohibit all smoking during spraying and several hours afterward.

Be sure the spray gun produces a semicoarse spray. A fog-like spray is ineffective and wasteful.

Mattresses should be placed on a pile of eight or ten. The outside of the pile should be well sprayed but not wetted. Most of the bedbugs are found in the folds. The top surface of the top mattress then should be sprayed lightly; a slight moistening of the surface is all that is needed. Then it should be turned over to start another pile so that the opposite side can be sprayed too. Pillows should be sprayed lightly.

The removable springs and berth frames should be placed vertically against the bulkhead and then be sprayed, paying particular attention to the joints. (Nonremovable berths will have to be sprayed in place.) As the spray is directed toward the bulkhead, the excess DDT will be deposited on it.

When the spraying has been completed, the mattresses should be returned to the berths. They may be made up and used after they have been aired four hours.

It is advisable to spray blankets and the inside of sea bags and gear lockers. DDT emulsion (or solution) can be used to spray upholstered furniture. In heavy infestations, spray along the bulkheads in the quarters, being certain to force the spray into cracks and crevices everywhere. Although the spray is the best way to kill bedbugs, powder can be used.

Lice.—DDT furnishes a simple and effective way to control lice. It will kill body lice, head lice, and pubic (crab) lice when it is used properly.

Body Lice.—Body lice are usually found in clothing rather than on men's bodies; therefore clothing and underwear should be treated. The 2-ounce can of 10 percent DDT powder (carried as part of the medical stores) can be used conveniently to sift the powder over the entire inner surface of the underwear. IT SHOULD BE RUBBED INTO THE SEAMS. The inside of shirts, trousers, hats, and other articles of clothing should be treated at the same time. This treatment should be effective for periods of three weeks or longer if the clothing is not washed. The effects remain until the clothing is changed or washed. Extra clothing and the bedding should be dusted too. Infested bedding can be treated by dusting between the sheets. Care should be taken to avoid reinfestation from discarded clothing or bath towels.

Head Lice.—Ten percent DDT powder dusted in the hair and rubbed in with the hands will kill growing and adult head lice. The hat also should be dusted, especially inside the hat band. As DDT will not kill louse eggs or nits, the treatment should be repeated seven to ten days later. After the DDT powder has been applied, the hair must not be washed for 24 hours, and preferably should not be washed for two or more weeks. Keeping it dusted will prevent reinfestation.

Crab Lice.—The same instructions that are recommended above for head lice will be effective against crab lice. All portions of the body, especially between the legs and in the armpits, MUST be thoroughly dusted. Any area that is not treated may harbor too few lice to be noticed but it will be enough to reinfest the entire body. A second treatment with DDT powder should be made seven to ten days after the first one to kill any young lice which may have hatched during this time. Never use DDT solution (or emulsion) on the skin because it may be absorbed into the body.

Mosquitoes.—Spraying with DDT can be used very successfully to kill the mosquitoes that carry malaria, yellow fever, dengue fever, and other mosquito-borne diseases when a ship is in a disease-infected port. It is just as effective anywhere against other mosquitoes that are only a nuisance.

A 5 percent DDT spray can be used to treat surfaces so that infected mosquitoes can rest on these surfaces and be killed before they have a chance to spread disease. When applying this residual spray all bulkhead and deckhead surfaces should be treated, especially dark corners, portions of

bulkheads behind pictures, furniture, and berths, and other places where mosquitoes rest undisturbed during the day. The under-surfaces of tables, berths, and gear lockers, backs of bookcases and berths, underparts of chairs and tables, closets, and screens should be treated. Instructions for depositing DDT residue by spraying and painting have been given above. This treatment often is effective against mosquitoes for several months when it is done properly.

Fleas.—The cause of flea infestation usually is a pet—a dog or a cat—but sometimes rat fleas will produce an infestation. The infested compartments including the sleeping places of pets and places where they are accustomed to lie down should be dusted thoroughly with 10 percent DDT powder. It should be forced into all cracks and crevices. If the powder is left in place, it should control fleas for 2 months after the dusting. If a 5 percent DDT spray is used instead of the powder, the infested compartments should be sprayed thoroughly, including the decks and about 2 feet up on the bulkheads, rugs, furniture, and in the sleeping places of pets and places where they are accustomed to lie down. Berths and bedding may have to be sprayed too.

Most dogs of average size may be dusted safely with about one tablespoonful of 10 percent DDT powder. To apply the powder, part the hair and dust lightly on the skin in a number of places on the body, particularly back of the head and neck, under the throat, and on the ears. The dog's bed should be dusted. Often a line of DDT powder along the middle of the dog's back is enough to kill all of the fleas and to prevent reinfestation for a week or more. DDT powder activates fleas before causing their death. The rapid crawling and biting of fleas in their death struggle cause a dog to scratch and bite vigorously until the fleas are paralyzed.

DDT powder should NOT be used on cats because they lick themselves and may swallow enough DDT to make them sick. Treating the infested areas and the cat's bed probably will be enough without treating the cat.

DDT oil solutions should NEVER be used on animals because the DDT may be absorbed directly through their skin with fatal results.

Weevils.—To control the spread of weevils in flour and other cereal and grains, residual spraying with 5 percent DDT emulsion (or solution) will be required in the dry storeroom. Because this part of a vessel is in the Steward's Department, it will be necessary to have his cooperation to do effective control work. The most important part of weevil control is the work that is done while a vessel is in port BEFORE stores are loaded for the next voyage. At this time, the following instructions should be carried out IN DETAIL, either by the Steward or by the shore staff, depending upon who is responsible:

(1) All dry stores remaining from the previous voyage MUST be removed. The gratings should be lifted, and the decks, deckheads, bulkheads, and shelving should be thoroughly scrubbed with soap and water.

(2) After the storeroom has been thoroughly cleaned, and before the foods are replaced, ALL surfaces should be sprayed with 5 percent DDT emulsion (or solution). This includes the deck, deckhead, bulkheads, gratings, battens, etc. DO NOT SPRAY THE FOOD CONTAINERS OR THE FLOUR BAGS. REMEMBER THAT DDT IS POISONOUS IF EATEN. BE SURE IT DOES NOT BECOME MIXED WITH THE FLOUR OR ANY FOOD OR SOAK THROUGH ANY FOOD CONTAINERS TO CONTAMINATE THE FOOD IN THEM. Observing these precautions will prevent DDT from contaminating the food.

(3) One hour should be allowed after the spraying so that the spray can dry. After this time has elapsed, all foods may be returned to their proper places.

After a voyage has begun it will be necessary that the dry storeroom in which flour and other cereals and grains are stored be sprayed with 5 percent DDT emulsion (or solution) at least once every month. It will be necessary to have the cooperation of the Steward to determine the time that will be convenient because of his Department's activities in preparing food and so that the spraying can be accomplished in as short a period as possible. Half of the dry storeroom should be treated at a time. After all the flour and other cereals and grains have been removed from this part and it has been thoroughly scrubbed with soap and water, the same procedure for applying DDT should be carried out that was done while the ship was in port. This work should be continued until ALL of the infested space has been treated with DDT.

If DDT powder is used instead of DDT spray, great care MUST be taken that it is not mixed accidentally with food in the storeroom. In the interest of safety, only colored DDT powder should be used in the storeroom.

IMPORTANT: IN ALL INSECT CONTROL ACTIVITIES, DO NOT TRY TO SUBSTITUTE DDT FOR SANITATION AND CLEANLINESS.

COAST GUARD AUXILIARY, COURTESY MOTORBOAT INSPECTIONS

A courtesy boat-inspection service to be conducted by especially selected and trained members of the Coast Guard Auxiliary has been authorized by the Commandant. This service is available only upon request of the boat owners, many of whom know little about the legal requirements applying to equipment and operation of motorboats. While the program got away to a slow start, it met with a most enthusiastic reception throughout the country as, in effect, it was a step toward assisting the conscientious small craft owners in complying with the law as well as a move toward self-regulation of this activity.

Auxiliary inspecting teams will be prepared to not only conduct courtesy inspections but will be ready to actually instruct the numerous new owners in safe operation of their vessels, if such service is requested.

It is planned to make available to the field a specially designed Auxiliary courtesy inspection sticker to replace various ones now in use in the several districts. The color of this sticker will be changed annually and will indicate to regular personnel on inspection duty that the vessel exhibiting the sticker on the windshield or on a forward port or window has, during the current calendar year, met the legal requirements relative to equipment. Unless a violation in operation or equipment is apparent it is the Commandant's desire that regular personnel assigned to boarding duty consider that small craft exhibiting this inspection sticker are in compliance with the motorboat law and regulations.

NUMBERING OF COUNTY AND MUNICIPAL VESSELS

The question was recently raised as to whether county and municipal corporation-owned vessels were required to be registered and numbered in accordance with the act of June 7, 1918 (46 U. S. C. 288), as amended, and the regulations promulgated thereunder as set forth in the Motorboat Regulations, part 29. For all intents and purposes vessels thus owned are classed as public vessels and are therefore exempt from the requirements of the act.

Some vessels were awarded numbers presumably on the premise that while the act exempted such vessels from the requirements, it did not prohibit the issuance of certificates of award of number to such vessel upon request of such authorities.

ALUMINUM SHIP CONSTRUCTION

A new cargo-carrying ship, constructed wholly of aluminum, has been announced and design and engineering work has been completed. Plans for its construction, after having been given careful consideration by various Government agencies concerned, have been approved.

Although aluminum has been used successfully on other ships, especially in deckhouse and superstructure fabrication, this will represent the first all-aluminum construction thus far attempted by the Maritime industry of the United States. The lightness, durability and great strength of aluminum have brought about its adoption for marine use.

The design calls for a vessel 422 feet long, 60-foot beam, and a displacement of 10,200 tons. According to estimates it will be about 40 percent lighter than any other ship of equivalent size. This decrease in structural weight will allow for about 20 percent more cargo or about 7,300 tons of payload as compared to about 6,000-ton payload for a steel vessel of the same design. It is estimated that 30 years will be the normal life of the all-aluminum ship as compared to 20-year assumed usefulness of conventional ships.

The aluminum freighter will be built for the Aluminum Company of America, and present plans call for it to be utilized in carrying bauxite ore, from which raw aluminum is derived, between the company's mines in Dutch Guinea and reduction plants in Trinidad.

REGULATIONS FOR LIGHTING BRIDGES

A new pamphlet "Regulations for Lighting Bridges" has recently been published and is to replace the pamphlet by the same name dated 1937. Copies of the new pamphlet have been issued to the various Coast Guard District Commanders and will be available upon request by those affected.

HEARING UNITS

Coast Guard Merchant Marine Hearing Units and Merchant Marine Details investigated a total of 1,223 cases during the month of October 1946. From this number hearings resulted involving 64 officers and 215 unlicensed men. In the case of officers 4 licenses were ordered revoked, 25 were suspended, 26 were suspended on probation, 4 were voluntarily surrendered, none closed with admonition, and 8 cases were dismissed. Of the unlicensed personnel 28 certificates were revoked, 125 were suspended, 67 were suspended on probation, 25 were voluntarily surrendered, 4 were closed with admonition, and 13 were dismissed after hearing.

NUMBERED AND UNDOCUMENTED VESSELS

The table below gives the cumulative total of numbered but undocumented vessels in each Coast Guard district by Customs ports for the month of November 1946. Generally speaking, undocumented vessels are those of less than 5 net tons engaged in trade and those of less than 16 gross tons used exclusively as pleasure vessels. These vessels are required to be numbered under the provisions of the act of June 7, 1918, as amended (46 U. S. C. 288)

Coast Guard district	Customs port	Total
1 (Boston)	(4) Boston	13,051
	(1) Portland, Maine	9,695
	(2) St. Albans	2,653
	(5) Providence	3,611
		29,010
2 (St. Louis)	(45) St. Louis	19,789
	(12) Pittsburgh	4,063
	(34) Pembina	123
	(35) Minneapolis	8,856
	(40) Indianapolis	5,257
	(42) Louisville	3,854
	(43) Memphis (part)	9,247
	(44) Vacant (Des Moines)	116
	(46) Omaha (part)	804
		52,079
3 (New York)	(10) New York	40,979
	(6) Bridgeport	7,651
		48,630
4 (Philadelphia)	(11) Philadelphia	19,341
		19,341
5 (Norfolk)	(14) Norfolk	14,068
	(13) Baltimore	20,088
	(15) Wilmington, N. C.	7,472
		41,628
7 (Miami)	(18) Tampa (part)	17,990
	(16) Charleston	1,627
	(17) Savannah	3,755
		23,372
8 (New Orleans)	(20) New Orleans	16,900
	(18) Tampa (part)	866
	(19) Mobile	6,443
	(21) Port Arthur	3,637
	(22) Galveston	9,001
	(23) Laredo	1,709
	(24) El Paso	6
	(43) Memphis (part)	76
		38,638
9 (Cleveland)	(41) Cleveland	14,120
	(7) Ogdensburg	6,554
	(8) Rochester	8,477
	(9) Buffalo	8,386
	(36) Duluth	3,996
	(37) Milwaukee	12,575
	(38) Detroit	27,246
	(39) Chicago	7,565
		88,919
10 (San Juan)	(49) San Juan	270
	(51) St. Thomas	70
		340
11 (Long Beach)	(27) Los Angeles	6,791
	(25) San Diego	1,424
	(26) Nogales	53
		8,268
12 (San Francisco)	(28) San Francisco	18,770
	(47) Denver	----------
		18,770
13 (Seattle)	(30) Seattle	30,207
	(29) Portland, Oreg.	9,334
	(33) Great Falls	961
	(46) Omaha (part)	2
		40,504

Coast Guard district	Customs port	Total
14 (Honolulu)	(32) Honolulu	3,316
		3,316
17 (Ketchikan)	(31) Juneau	6,035
		6,035
Grand total		418,850

WHALING CONFERENCE

During the early days of whaling, the indiscriminate killing of whales was the accepted practice and was limited only to the capacity of the factory ship. However, killer boats rapidly became as large and somewhat faster than the old time whaler and the factory ship that accompanied the killer boats was large enough to render down a considerable number of whales. Multiply this by the number of maritime nations interested in whaling and it can readily be seen that the supply of whales would soon be exhausted. Realizing that some control should be placed upon the kind, size and number of whales killed each season a conference of the various maritime nations was called in 1931 with the task of placing controls upon the killing of whales. During the war whaling was reduced to a minimum. However, with the return to normal pursuits the killing of whales is again the subject of the various nations.

A meeting of the International Whaling Conference met in Washington, D. C., on November 20, 1946, for the purpose of obtaining signatures to a new convention for the years 1947–48. Among the various requirements of the treaty, two inspectors will be maintained on each factory ship for the purpose of maintaining 24-hour inspection and adequate inspection will be maintained at all land stations for the conservation and utilization of whale resources. Fixing of open and closed seasons; size limits for each species; open and closed waters, including the designation of sanctuary areas; time, methods and intensity of whaling (including the maximum catch of whales to be taken in one season) are functions of each of the signatory nations. As in the past, the Coast Guard will represent the United States and enforce the provisions of the treaty and accompany the factory ships on their expeditions. The treaty prohibits the killing of any blue, fin, sei, humpback, or sperm whales below the following respective limits: 70, 55, 40, or 35 feet. The taking of gray whales or right whales and the killing of calves or female whales accompanied by calves is also forbidden.

RULES OF THE ROAD

NOTE.—With this issue of the Proceedings, the first of a series of 12 articles based on the "Comparative Rules of the Road" will be published. These articles will be taken from a pamphlet prepared by the Coast Guard entitled "Comparative Rules of the Road" which is available from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 45 cents per copy. The outstanding 12 articles of interest will be published but no attempt is made to reprint the pamphlet with its illustrations in its entirety.

THE VARIOUS RULES AND REGULATIONS AND THE AREAS IN WHICH THEY APPLY [1]

INTERNATIONAL RULES

The International Rules apply on the high seas, and on most other waters throughout the world outside the inland waters of the United States and its territories. For many entrances to harbors, bays, and estuaries, specific lines of demarcation between the high seas and inland waters have been laid down. The general rule covering such lines, where not so prescribed, is as follows: At all buoyed entrances from seaward to bays, sounds, rivers, or other estuaries for which specific lines of demarcation have not been prescribed, the International Rules apply outside of a line approximately parallel with the general trend of the shore, drawn through the outermost buoy or other aid to navigation of any system of aids.

INLAND RULES AND PILOT RULES

The Inland Rules and Pilot Rules apply on all waters of the United States and territories inside the lines separating them from the high seas with the following exceptions:

The Great Lakes and their connecting and tributary waters, and the St. Lawrence River as far east as Montreal.

The Red River of the North.

The rivers emptying into the Gulf of Mexico and their tributaries.

GREAT LAKES RULES AND PILOT RULES FOR THE GREAT LAKES

The Great Lakes Rules and the Pilot Rules for the Great Lakes apply on the Great Lakes and their connecting and tributary waters and on the St. Lawrence River as far east as Montreal.

WESTERN RIVERS RULES AND PILOTS RULES FOR WESTERN RIVERS

The Western Rivers Rules and Pilot Rules for Western Rivers apply on the Red River of the North and rivers emptying into the Gulf of Mexico and their tributaries.

THE MOTORBOAT ACT OF 1940

The rules in this act apply to motorboats, as defined in the act, on all the navigable inland waters of the United States, including Great Lakes and rivers emptying into the Gulf of Mexico.

The requirements for lights and sound signal devices apply to all vessels of the classes indicated when operating in these waters. They do not apply on the high seas, where International Rules govern.

Motorboats, like other vessels, observe the rules of the road for the area in which they are at the time operating.

REFERENCES

In the following pages, wherever stautory or pilot rules are cited, reference is made to the appropriate publication, in the case of the former by article number and/or rule, and in the case of the latter, by section number.

GENERAL PRINCIPLES OF COLLISION PREVENTION

It is assumed that you are reading this article because you are a professional or amateur mariner and that sooner or later, perhaps many times, you will find yourself in a position to cause or to prevent a marine collision. Collisions occur at frequent but unpredictable intervals, and are never scheduled. They occur less often in fog than in clear weather, with the vessels visible to each other long before they are dangerously close together. With the exception of perhaps one case in a hundred, which is

[1] This material has been excerpted from the pamphlet "Comparative Rules of the Road," prepared by the United States Coast Guard.

due to Act of God, these collisions occur because someone who should know better disobeys the Rules of the Road, rules which were designed by highly experienced professionals to prevent the very thing that happens, rules that have stood the test of time all over the maritime world.

The next time your vessel approaches another, one of three things will probably result. (1) You will both obey the rules applicable to the given situation, and will accordingly clear each other in a routine manner, with proper signals, at a safe distance. Or (2) one of you will try to improve on the established rules with a better system of your own, and there will be a near collision, though you will escape, perhaps, by the skin of your teeth. Or (3) your original technique, contrary to the rules, will end up in actual collision. You may be interested to learn that in a majority of collision cases investigated by the Coast Guard not merely one, but both, vessels are guilty of violations. The 99 percent correlation between disobedience of the Rules of the Road and collision leads to the inescapable conclusion that the rules, *if obeyed by both vessels are practically collision proof.*

If you will read the following pages with some care you will find that despite the many differences in the several sets of rules used in various sections, there are a few important principles common to all the rules which anyone may understand and follow. Once you have mastered these common principles they will serve as a foundation upon which to develop your memory of the points of difference to be observed as you go from one region to another, as for example, from sea to coastal inland waters, from the Gulf of Mexico into the Mississippi River, or from the Great Lakes down the St. Lawrence River. If you will not depend too much on memory but will re-read the rules reasonably often, you will find you are in the way of knowing the rules as every mariner should know them, so that you can use them correctly, on occasion, without having to look them up. Anyone will concede that a collision approach is not the time or place to study the rules, and that *the only alternative is to know them before emergency occasion for their use arises.*

Before stating these common principles and the points of difference, it would be well to consider a little common sense advice. Never seek a collision situation for no more important purpose than to try out a rule. It is generally foolish and unnecessary for vessels in wide open waters and particularly on the broad bosom of the ocean, to allow themselves to get close enough together so that recourse to the rules must be taken to avoid collision. A proper lookout, day or night, with the taking of adequate bearings, should discover both an approaching vessel and her presumable track in ample time to avoid any near approach.

But once any situation as described by the rules is actually entered, *the rules must be obeyed until the vessels are finally past and clear.* In this connection, there are five important points which should be borne in mind, as follows:

(1) The rules as a whole are not optional but *mandatory.* For example, in the International Rules the word "shall" is used 130 times while the word "may" occurs 15 times. And sometimes where the rule says "may" the rule of good seamanship makes it a "must."

(2) The rules must be obeyed *promptly,* in plenty of time to avoid not only actual collision, but serious risk of it.

(3) The rules *apply alike to all vessels* without regard to flag, public or private ownership, service, size, or speed.

(4) Many of the rules *have been modified by court interpretation* and to be obeyed properly must be understood in the light of that interpretation.

(5) Every vessel is governed by the particular rules which *apply in the geographical location where she finds herself at the time of an approaching situation.* This is always true, except when two vessels approach each other on opposite sides of a line separating one jurisdiction from another, in which case the rule of special circumstances, which is common to all sets of rules, applies.

Every mariner will do well to remember these four cardinal points in the prevention of collision:

First, a proper lookout.—A proper lookout is the eyes and ears of the ship. His job is to discover as early as possible the approaching vessel and to report that discovery to the officer on watch. The importance of the lookout can scarcely be overestimated. Because of his importance, the courts require: (a) That he be an experienced seaman; (b) that he have at the time no other duties, such as steering, etc.; (c) that he be alert and vigilant; (d) that he be stationed as low down and as far forward on the vessel as possible, and (e) that a sufficient number of lookouts be stationed to detect an approaching vessel from any direction.

Second, the taking of bearings.—Having discovered an approaching vessel, it is not sufficient to judge her position during a subsequent approach by eye alone. Bearings should be taken as soon as a vessel is sighted, and at repeated intervals thereafter, to determine whether or not risk of collision exists. A stationary bearing whether taken by compass, pelorus or bearing board, is positive evidence that without remedial action, collision will occur. The direction and amount of change in bearings determines when such risk ceases, and on which side safe clearance will be made.

Do not regard the taking of bearings as a chore. Instead, recognize the operation as a convenient and reliable method of relieving your own tension whenever an approaching situation develops. If the first two or three bearings show a definite change there can be no collision as long as conditions remain the same. If the bearings are constant you have equally certain information that without positive action by one or both vessels collision is inevitable, and *can determine and carry out in plenty of time the action best calculated to avoid it.*

Third, proper lights at night.—The function of lights is to reveal to an approaching vessel the nature and, to some extent the course, of your vessel. Between sunset and sunrise be sure you have proper lights burning brightly. This should be checked and reported by the lookout not only at half hour intervals but again *whenever an approaching vessel is reported.*

Fourth, the use of whistle signals.—The sounding of whistle signals is prescribed by every code of rules for the specific purpose of announcing audibly action intended to avoid collision. On the high seas such signals are required for any proper change of course when another vessel is in sight. In all of the various inland rules an exchange of passing signals is required regardless of a change in course, if the approach is, or will be, within half a mile. The unwarranted omission of the required whistle signals has become one of the principal causes of marine collisions. Do not neglect to observe whistle requirements, nor to repeat signals which apparently are not heard or understood the first time.

DIFFERENCES IN THE VARIOUS RULES OF THE ROAD

Indications that the article published in the November issue of the Proceedings entitled "Differences in the Various Rules of the Road" has attracted considerable attention in the field is revealed in a letter written to the Commandant by Capt. Thomas W. Sheridan, secretary-treasurer of the Council of American Master Mariners, New York. After referring to the subject article and to various efforts of the American master mariners to bring about some semblance of

unification in the various rules of the road, Captain Sheridan writes:

For a full decade the Council of American Master Mariners, composed entirely of experienced "deep water" captains of American merchant ships, has been energetically working for the removal of the vicious menace to navigation caused by conflicts in the triple set of Rules of the Road, supposed to prevent collisions, in force off the United States' coasts. One phase—of many—of the situation is well put in the Coast Guard article:

> A book might be written on the multitudinous differences that have developed in the various rules of the road in different sections of the United States—differences which are the more noticeable because in other countries the International Rules are followed and, except for local harbor regulations, departures such as found in our various codes are unknown.

The reference also emphasizes, as has the Council of American Master Mariners' appeals for *the past 10 years*, the confusion worse confounded faced by a navigator making even a short leg from one United States port to another in the matter of whistle signals alone, not to dilate on the multitude of other dangerous differences and doubts due to the totally unnecessary confusion-breeding catastrophe-generating conflicts in the diverse rules of the road required. The absurd thing about all this is that it is entirely unnecessary and can be cured by internal United States departmental and legislative action—at least half without even legislative action.

The Pilot Rules were originally promulgated by the former Steamboat Inspection Service and inherited by the Coast Guard. It is thus obvious that in this regard the Coast Guard could eliminate this part of the menace by revoking the Pilot Rules without congressional action. The United States Army has some confusion-breeding rules concerning lights, etc., that differ definitely from the International Rules but it is certain that the Army has no desire to be a menace to navigation and would yield to a request by the Coast Guard (after the Coast Guard had provided a good example by eliminating the dangerous Pilot Rules) to cancel their regulations as a patriotic gesture. It is certain that if the Coast Guard brings this matter to the attention of Congress, with an argument similar to the matter contained in the reference with a request for repeal of the Inland Rules, that Congress would repeal those collision-causing rules in the interests of safety at sea. All of the eminent authorities—admirals, cabinet members, secretaries, etc.—to whom the council has made its past poignant appeals, have voiced sincere sympathy with the efforts to have the useless, collision-causing rules repealed.

Therefore, by the present, and the direction of the Council of American Master Mariners, I have the honor to request that the United States Coast Guard take the following actions:

a. Revoke the Pilot Rules.

b. Request the United States Army to revoke all rules regarding lights which conflict with those in the International Rules.

c. Request the Congress of the United States to repeal the Inland Rules.

With assurance of profound appreciation of any remedial action taken by the United States Coast Guard to rectify the dangerous differences in the triple sets of Rules of the Road, I am,

Yours truly,

(S) THOS W. SHERIDAN.
Secretary-Treasurer.

The Coast Guard article referred to was actuated by a resolution adopted at the annual Propeller Club convention as follows:

> The rules of the road to prevent collisions on the high seas and in the various inland waters of the United States are in many respects needlessly different; and many of these differences have for years contributed to confusion in the minds of mariners whose vessels operate in more than one jurisdiction, oftentimes in a single voyage.
>
> A clear understanding and an intelligent observance of the rules of the road is conceded to be the surest preventive of collisions on the high seas.
>
> The Propeller Club of the United States hereby goes on record as favoring the principle of uniformity in the rules to prevent collisions on all public navigable waters; and further, as favoring the revision of both statutory and regulatory rules so as to bring them into agreement insofar as such agreement seems practicable to the various maritime interests concerned.
>
> The Secretary is hereby instructed to send copies of this resolution to all appropriate parties.

The Coast Guard is very pleased to receive this latest evidence of the interest of the maritime industry in unifying the Rules of the Road. The Council of the American Master Mariners, because of the outstanding caliber of its membership, is in a position to speak with authority on this subject. It ably represents that group of professional seamen whose primary duty is the safe navigation of American vessels. The organization is to be commended, not only for the present emphatic stand which it is taking, but for its consistent efforts through the last decade to bring rhyme and reason into the rules to prevent collisions. The Propeller Club of the United States may be said to express the combined voice of management and insurance, and thus likewise to speak with great weight. It is such expressions of opinion from the maritime industry which will eventually make possible the correction of the weaknesses which are being increasingly recognized by mariners throughout the United States.

LESSONS FROM CASUALTIES

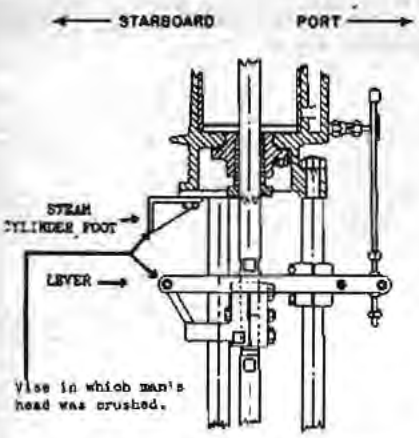
DEATH IN THE ENGINE ROOM

From blood stains on the feed pump and from the jagged nature and the location of head wounds suffered by a junior engineer, a Coast Guard investigator was able to reconstruct the details of a recent fatal accident. Apparently the man had been sitting or crouching in the area forward and to the starboard side of the feed pump, with his head cocked right side uppermost, and was apparently either tightening the steam piston and stuffing box gland nuts, or preparing to do so, when his head was caught by the ascending starboard tip of the forward lever and crushed against the steam cylinder foot. (See diagram.)

When the details of this accident were told to several marine engineers they hardly believed that it could have happened. But with usual thoroughness the investigator had pictures taken of the scene of the casualty, the machinery involved, and of the victim, and there is no refuting the grisly reality of the pictures of the corpse. The reaction of these same engineers when viewing a feed pump undoubtedly would be that a guard is unnecessary on such a relatively slow-moving piece of machinery. But movable machinery, regardless of its speed, must always be approached with caution. There is an inherent danger about moving machinery that must never be overlooked. There is inevitableness about the stroke of a feed pump that is faintly akin to the discharge of an atom bomb; once it starts "there just ain't nuthin' going to stop it" until the full cycle is completed, and the unfortunate man caught in its grasp will certainly be badly injured.

Exactly how the junior engineer got his head caught is not known; perhaps a slight dizziness, the roll of the vessel, or a simple diversion from the job at hand, was the cause. The important fact is that a man has been killed and the lesson pointed out is that such seemingly impossible accidents do happen and can happen to any member of the engine room so engaged unless due precaution is taken.

Getting back to the question of the guard on feed pumps—a consensus among engineers would find they consider one unnecessary, because of the slow-moving pace of the feed



MAIN FEED PUMP SECTION

You can get a permanent injury with a temporary repair job.

pump; annoying, because of the necessity of frequently swabbing the rods and occasionally tightening gland nuts; and quickly rendered useless, because of the tendency of personnel not to restore it to its original position when removed to perform work on the pump. These reasons advanced against the installation of a guard show that it is impracticable from an operational viewpoint. The best guard of all, however, can be you, yourself. Be alert, keep your mind on your work, and be doubly cautious when working on moving machinery.

THREE Safety Rules:

1. Know your job.
2. Keep your mind on it.
3. Use your head.

"EMPTY" HAZARDS

Many people are often killed or injured because someone else did not think. A so-called "empty" gun or a "gas-free" tank can be fatal when inherent hazards are ignored.

There was the case of a roving armed guard. In the morning when he examined his gun it was empty. When he finished his watch he turned the gun over to his "Relief." Later he resumed the watch without examining the gun to see if it had been loaded. The guard assumed it was not and aimed the gun at a shipmate while skylarking. It happened! The gun went off and his shipmate was killed.

A quartermaster on a tanker, while at a west coast port, dropped a wrench into a tank. Intent on recovering the wrench, he did not think about whether the tank was gas free or not. He knew that the tank had been gas freed several days previously and assumed it still was. So the quartermaster went after the wrench without telling anyone or taking any precautions. Fortunately his absence was noticed in sufficient time and he was rescued. It took 6 days in the hospital to recover from the effects of the gas.

It cannot be over-emphasized, but no man should enter a tank without taking the usual safety precautions of knowing definitely it is gas free and then having a line attached and someone else on the outside watching, and, if necessary, pulling him back to safety. In this case the man should never have entered this "loaded" tank without ascertaining the toxicity of the air in the tank. If no gas indicator was immediately available, then the wrench should have been left in the tank until it could have been retrieved without danger.

These accidents are preventable and must be charged up to negligence.

Boiler Failure Due to Tube Expansion

Some recent cases of boiler failures have brought the attention of the Coast Guard to the importance of expansion bends in piping design. Where piping is subjected to unequal expansion, the damage and possible casualties caused by the resultant stresses cannot be too highly emphasized. The lesson to be gained by these precautionary measures was found in the solution to the problem of several boiler tube failures on the C2-S-B1 cargo vessels equipped with water tube boilers of the two-drum bent-tube type. Shortly after these ships were placed in operation, trouble was experienced with circumferential cracking of the feed tubes between the economizer outlet header and the steam drum at the point where the tubes entered the steam drum. Upon examination of the feed tubes, it was found that the metal in the tubes had hardened to a point beyond the elastic limit. Repairs to the cracked feed tube by safe ending a new section, although watertight under the hydrostatic test, did not stand up under steaming conditions. This led to the thought that the stresses so concentrated in the straight section of the tube as to cause fatigue failure, where due to the unequal expansion of the tubes under the normal temperature rise.

Tubes annealed and installed in this location seemed to fare better, but did not give completely satisfactory service. As a direct step in eliminating the stresses causing the failure of the tubes, the boiler manufacturer redesigned the feed tube incorporating expansion bends to provide for expansion and to relieve the stresses. No further complaints were received from vessels after replacement of the existing feed tubes with expansion bends.

To most expeditiously effect the repair with minimum lay-up time, the boiler manufacturer designed a standard replacement tube with an expansion bend for all boilers reporting similar difficulties. Supplies of the new feed tubes have been stocked by the manufacturer and are available for prompt shipment to vessels desiring to install them.

Oil Pollution Is Dangerous

Oil spread on water may help to calm a rough sea, but oil on the surface of water in the vicinity of docks and anchorages is out of place and creates very dangerous conditions.

Only recently the master and the chief engineer of an American tanker were in a native boat going ashore from their ship. They rounded the stern of their vessel and headed for some concrete steps at the foot of the dock. As the boat struck these steps an open-flame lantern in the rowboat toppled over and ignited oil on the surface of the water. Immediately a huge fire broke out with flames at times reaching as high as the stack of the tanker. The last view those on the stern of the tanker had of the occupants of the rowboat showed that they had arisen from their seats in the boat and were trying to reach the steps so close to them.

The fire was of only a few minutes' duration and was quickly extinguished with the ship's hose and foam type extinguishers on the dock. There was no damage to the tanker but all three occupants of the rowboat were killed.

No satisfactory explanation was found as to the origin of the oil. The dock was constructed of concrete and in such a manner as to make it impossible for oil to accumulate on the water beneath the dock. All possible safety measures and precautions had been taken by the crew of the tanker before transfer operations were commenced. The sole possibility left is that perhaps proper precautions were not taken by the crew of a foreign tanker moored to the oil dock directly ahead of the American tanker.

Stringent regulations are enforced in domestic ports as to transfer operations, oil pollution, and the prevention of fire hazards. This accident happened in a foreign port where, apparently, such measures were not so rigidly enforced. It then becomes the responsibility of the master and his crew to act as their own guards.

This unfortunate accident was not caused by any negligence aboard the

tanker. Some reflection is cast, however, on the judgment of master and the chief engineer, the heads of their respective departments, in not noticing and realizing the inherent danger of having an open-flame lantern in a rowboat traveling through an oil slick. This account is made available to emphasize the potential dangers of oil pollution and in the hope that its telling may prevent accidents of a similar nature.

Knowledge Is No Burden
Safety Always

APPENDIX

AMENDMENTS TO REGULATIONS

TITLE 46—SHIPPING

Chapter I—Coast Guard: Inspection and Navigation

Subchapter D—Tank Vessels

PART 37—SPECIFICATIONS FOR LIFESAVING APPLIANCES

ELECTRIC WATER LIGHTS

By virtue of the authority vested in me by R. S. 4405 and 4417a, as amended (46 U. S. C. 375, 391a), and Reorganization Plan No. 3 of 1946 (11 F. R. 7875), I find that an emergency exists and the following amendment to the Tank Vessel Regulations shall be made effective on the date of publication of this order in the Federal Register:

Section 37.9–1 *Automatic electric water lights—TB/ALL* is amended in the second sentence by changing the date "January 1, 1947" to "July 1, 1947." (For text of section see Federal Register of August 23, 1945, 10 F. R. 10365, as amended October 2, 1945, 10 F. R. 12408, December 19, 1945, 10 F. R. 15174, and July 2, 1946, 11 F. R. 7346.)

This amendment to the Tank Vessel Regulations is published without prior general notice of its proposed issuance for the reason that notice and public rule making procedure in connection therewith are hereby found to be impracticable. Because of the shortage of critical materials necessary in the manufacture of automatic electric water lights sufficient quantity of approved types of water lights is not available for compliance with the regulations. This amendment postpones the effective date of the new requirements for automatic electric water lights until July 1, 1947.

(R. S. 4405, 4417a, 46 U. S. C. 375, 391a; Reorganization Plan No. 3 of 1946 (11 F. R. 7875))

Dated: December 26, 1946.

[SEAL] J. F. FARLEY,

Admiral, U. S. Coast Guard, Commandant.

[F. R. Jan. 1, 1947, 12 F. R. 31; F. R. Doc. 46-22037; Filed, Dec. 31, 1946; 8:51 a. m.]

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 78

Numbering of certain undocumented vessels sold as surplus by the United States Maritime Commission or War Shipping Administration; amendment to Navigation and Vessel Inspection Circular No. 75

Navigation and Vessel Inspection Circular No. 75 dated 16 July 1946, establishes conditions under which vessels sold as surplus property by the United States Maritime Commission or the War Shipping Administration (the latter now consolidated with the Maritime Commission) may be issued a certificate of award of number upon a prima facie showing of ownership. The Maritime Commission finds it difficult, in view of the volume of vessel disposal, to furnish bills of sale for certain vessels which in most instances, will operate under a certificate of award of number. In order to relieve the Maritime Commission of the burden of preparing bills of sale for these vessels, paragraph 6 of Navigation and Vessel Inspection Circular No. 75 is amended to read as follows:

"6. The directives set forth in this circular will not be construed to require a formal bill of sale from the Maritime Commission to the successful bidder in the case of any such vessel under 5 net tons. The Sale Order or Certificate of Delivery of Vessel furnished by the United States Maritime Commission will be accepted by all District Commanders as sufficient evidence of ownership to issue a certificate of award of number under the provisions of the Act of June 7, 1918, as amended (46 U. S. C. 288). In the case of undocumented vessels which are 5 net tons and over and which will be used exclusively for pleasure purposes, the Sale Order or Certificate of Delivery of Vessel will also be accepted as sufficient evidence of ownership to number the vessel. Where any such vessel later becomes subject to documentation by reason of change of build or service, the Maritime Commission will furnish the necessary bill of sale required by the Customs for documentation purposes."

J. F. FARLEY,
Admiral, United States Coast Guard, Commandant.

Correction

Subchapter A—Procedures Applicable to the Public

PART 2—VESSEL INSPECTIONS

In section 2.01–50 *Special permits*, under paragraph (c) *Lifeboats on river passenger vessels*, the reference in the first sentence to "46 U. S. C. 475" should be "46 U. S. C. 474."

EQUIPMENT APPROVED BY THE COMMANDANT

By virtue of the authority vested in me by R. S. 4405, 4417a, 4426, 4481, 4488, and 4491, as amended, 49 Stat. 1544, 54 Stat. 163–167, 55 Stat. 244 (46 U. S. C. 367, 375, 391a, 404, 474, 481, 489, 526–526t, 50 U. S. C. 1275) and section 101, Reorganization Plan No. 3 of 1946 (11 F. R. 7875) the following approval of equipment is prescribed, effective upon the date of publication in the Federal Register:

BUOYANT CUSHIONS FOR MOTORBOATS

Approval No. A–324, standard kapok buoyant cushion, for use on motorboats of Classes A, 1, and 2 not carrying passengers for hire, manufactured by Necessities Limited, P. O. Box 2148, Greenville, S. C.

Approval No. B–357, 15" x 48" x 2" rectangular kapok buoyant cushion, Style No. 30, 64 ounces of kapok, for use on motorboats of Classes A, 1, and 2 not carrying passengers for hire, Dwg. Nos. C–198 and A–135, dated November 1, 1946, manufactured by The American Pad and Textile Co., Greenfield, Ohio.

DISENGAGING APPARATUS

Rottmer Type Releasing Gear, Model No. O. R. 5 (maximum working load of 12,600 pounds per hook, 25,200 pounds per set) (Arrangement and Assembly, Dwg. No. 2086, dated December 16, 1945), submitted by the

Imperial Lifeboat and Davit Co., Inc., Athens, N. Y.

LIFEBOAT

28' x 9.8' x 4.12' steel motor-propelled lifeboat, without radio cabin, 60-person capacity, General Arrangement and Construction Dwg. No. 2827, dated September 11, 1946, submitted by the Lane Lifeboat and Davit Corp., Flushing, N. Y.

LIFEBOAT COMPASS

Lifeboat compass No. 34–1000, Assembly Dwg. No. 34–1000, manufactured by Kenyon Instrument Co., Inc., 1345 New York Avenue, Huntington Station, Long Island, N. Y.

RING LIFE BUOYS

Approval No. A–322, standard 20-inch cork ring life buoy, manufactured by the Kent Marine Products Corp., 426 Great East Neck Road, West Babylon, N. Y.

Approval No. A–323, standard 24-inch cork ring life buoy, manufactured by Kent Marine Products Corp., 426 Great East Neck Road, West Babylon, N. Y.

Dated: November 29, 1946.

[SEAL] MERLIN O'NEILL,
Rear Admiral, U. S. C. G.,
Acting Commandant.

(11 FR 14151, December 6, 1946.)

ITEMS SUITABLE FOR MERCHANT MARINE USE

CERTIFICATE OF ARTICLES OF SHIPS' STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from November 27 to December 26, 1946, inclusive, for use on board vessels in accordance with the provisions of Part 147 of the regulations governing Explosives or Other Dangerous Articles on Board Vessels:

Magik Mist Aerosol Insecticide Dispenser, Knapp-Monarch Co., 200 Fifth Avenue, New York City, N. Y., Certification No. 208, December 2, 1946.

ELECTRICAL APPLIANCES

The following list supplements that published by the United States Coast Guard under date of May 15, 1943, entitled "Miscellaneous Electrical Equipment Satisfactory for Use on Merchant Vessels," as well as subsequently published lists, and is for the use of Coast Guard personnel in their work of inspecting merchant vessels. Other electrical items not contained in this pamphlet and subsequent listings may also be satisfactory for marine use but should not be so considered until the item is examined and listed by Coast Guard Headquarters.

Before listings of electrical appliances are made, it is necessary for the manufacturer to submit to The Commandant (MMT), United States Coast Guard, Washington 25, D. C., duplicate copies of a detail assembly drawing, including a material list with finishes of each corrosive part of each item.

Manufacturer and description of equipment	Location apparatus may be used				Date of action
	Passenger and crew quarters and public spaces	Machinery cargo and work spaces	Open decks	Pump rooms of tank vessels	
Grouse-Hinds Co., Syracuse, N. Y.:					
Lighting fixture, nonwatertight, 1 60-watt lamp, maximum, Cat. No. GRF1195		x			10/25/46
Type GRF series; switches, receptacles, pilot light, lighting fixtures, and junction box conduiets:					
GRF119 3-inch outlet conduiet with mounting feet, 1½ inches deep, drawing No. 6073–D					10/25/46
GRF159 3½-inch outlet conduiet with mounting feet, 1½ inches deep, drawing Nos. 10892–B1 and 6017–D2					10/25/46
GRF199 and GRF209 outlet conduiet with mounting feet, 1½ and 2¼ inches deep, respectively, drawing No. 10332–B4					10/25/46
Cover assembly for 4-inch outlet box, drawing No. 5405–A2					10/25/46
Cover assembly for 3½-inch outlet conduiet, drawing No. 12996–A					10/25/46
Receptacle cover assembly for 3½-inch outlet conduiet, drawing No. 13156–A1					10/25/46
Pilot light cover for 3½-inch outlet conduiet, drawing No. 13155–A1					10/25/46
Switch cover for 3½-inch outlet conduiet, drawing No. 13154–A2					10/25/46
Cover and wiring device assembly for 3-inch outlet conduiet, drawing No. 13150–A1					10/25/46
Plain cover assembly for 3-inch outlet conduiet, drawing No. 13148–A					10/25/46
Receptacle cover for 3-inch outlet conduiet, drawing No. 13149–A					10/25/46
Assembled drawing, GRF1398 etc., marine conduiets, drawing No. 10891–B					10/25/46
Assembled drawing, GRF1196 etc., marine conduiets, drawing No. 10894–B					10/25/46
Assembled drawing, GRF1393 etc., marine conduiets, drawing No. 10896–B1					10/25/46
Assembled drawing, GRF1950 etc., marine conduiets, drawing No. 10360–B2					10/25/46
Type GRF series; conduiet assemblies; Cat. No. GFR1393, junction box, without terminal block	x	x			10/25/46
Type GRF series; conduiet assemblies; Cat. No. GFR1396, junction box, with terminal block	x	x			10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1950, junction box, without terminal block	x	x			10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1910, junction box, with terminal block	x	x			10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF2050, junction box, without terminal block	x	x			10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF2910, junction box, with terminal block	x	x			10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1191, junction box, without terminal block	x				10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1941, switch, 10-ampere, 1-pole, 125-volt	x				10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1942, switch, 10-ampere, 2-pole, 125 volt	x				10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1943, switch, 10-ampere, 3-way, 125-volt	x				10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1944, switch, 5-ampere, 4-way, 125-volt	x				10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1945, receptacle, 10-ampere, 2-pole, 125-volt	x				10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1940, receptacle, 15-ampere, 2-pole, 125-volt	x				10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1398, receptacle, 10-ampere, 2-pole, 125-volt	x	x			10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1390, receptacle, 5-ampere, 2-wire, 125-volt	x	x			10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1591, switch, 10-ampere, 1-pole, 125-volt	x	x			10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1592, switch, 10-ampere, 2-pole, 125-volt	x	x			10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1502, switch, 10-ampere, 3-way, 125-volt	x	x			10/25/46
Type GRF series; conduiet assemblies; Cat. No. GRF1503, pilot light	x	x			10/25/46

Merchant Marine Personnel Statistics

MERCHANT MARINE LICENSES ISSUED DURING NOVEMBER 1946

DECK OFFICERS

Region	Master										Chief mate									
	Ocean		Coast-wise		Great Lakes		B. S. & L.		River		Ocean		Coast-wise		Great Lakes		B. S. & L.		Rivers	
	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R
Atlantic coast	33	41	3	7	....	....	9	31	....	4	50	8	3	1	....	....	1	1	....	1
Gulf coast	8	16	....	2	....	1	4	3	....	3	18	2	....	....	....	....	....	....	1	1
Great Lakes and rivers	....	....	....	....	....	2	....	2	4	7	....	....	....	....	....	....	....	....	3	8
Pacific coast	19	33	....	1	....	....	....	15	....	....	25	5	....	....	....	....	3	2	....	....
Total	60	90	3	10	....	3	13	51	4	14	93	15	3	1	....	....	4	3	4	10

Region	Second mate										Third mate										Pilots					
	Ocean		Coast-wise		Great Lakes		B. S. & L.		Rivers		Ocean		Coast-wise		Great Lakes		B. S. & L.		Rivers		Great Lakes		B. S. & L.		Rivers	
	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R
Atlantic coast	53	8	1	1	....	....	....	....	....	....	50	3	....	1	....	....	....	....	....	....	....	....	45	82	....	....
Gulf coast	19	3	....	1	....	....	....	....	....	....	33	3	....	....	....	....	....	....	....	....	....	....	8	17	....	4
Great Lakes and rivers	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	2	4	21	12
Pacific coast	31	2	....	....	....	....	....	....	....	....	26	....	....	....	....	....	....	....	....	....	....	....	13	45	....	....
Total	103	13	1	2	....	....	....	....	....	....	109	6	....	1	....	....	....	....	....	....	....	3	68	148	21	16

Region	Master mate				Total		
	Uninspected vessels, high seas				Original	Renewal	Grand total
	O	R	O	R			
Atlantic coast	....	2	1	1	249	192	441
Gulf coast	....	....	....	....	91	56	147
Great Lakes and rivers	....	....	....	....	30	38	68
Pacific coast	3	4	1	....	121	107	228
Total	3	6	2	1	491	393	884

ENGINEER OFFICERS

Region	Chief engineer, steam				First assistant engineer, steam				Second assistant engineer, steam				Third assistant engineer, steam			
	Ocean		Inland		Ocean		Inland		Ocean		Inland		Ocean		Inland	
	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R
Atlantic coast	39	93	7	41	51	22	3	3	65	19	1	2	18	9	.....	.....
Gulf coast	8	16	.....	3	12	5	.....	2	17	4	.....	.....	15	4	.....	.....
Great Lakes and rivers	2	6	1	8	1	2	.....	2	2	.....	.....	.....	1	2	.....	.....
Pacific coast	28	44	2	5	26	7	.....	2	28	6	.....	.....	44	5	.....	.....
Total	77	159	10	57	90	36	3	9	112	29	1	2	78	20	.....	.....

Region	Motor vessels								Uninspected vessels				Totals		
	Chief engineer		First assistant engineer		Second assistant engineer		Third assistant engineer		Chief engineer		Assistant engineer		Original	Renewal	Grand total
	O	R	O	R	O	R	O	R	O	R	O	R			
Atlantic coast	27	56	12	16	9	8	102	1	.....	1	.....	.....	334	271	605
Gulf coast	5	6	2	.....	1	1	6	.....	.....	.....	.....	.....	66	41	107
Great Lakes and rivers	1	7	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	8	28	36
Pacific coast	9	13	4	2	3	2	6	2	.....	3	1	.....	151	91	242
Total	42	82	18	19	13	11	114	3	.....	4	1	.....	559	431	990

ORIGINAL SEAMEN'S DOCUMENTS ISSUED DURING NOVEMBER 1946

Region	Continuous discharge book	Certificate of identity	A. B., green, 3 years [1]	A. B., green, 9 months emergency [1]	A. B., blue, 18 months, 12 months [1]	A. B., blue, 6 months emergency [2]	A. B., blue, 6 months emergency [2]	Lifeboat, 12-24 months [4]	United States Merchant Marine Document	Q. M. E. D., 6 months	Q. M. E. D., emergency	Radio operators	Certificate of service	Tankerman	Staff officer	Total
Atlantic coast	.....	.....	40	92	111	.....	1	289	2,084	238	113	13	1,735	14	75	4,805
Gulf coast	11	.....	10	55	14	.....	.....	50	576	108	66	.....	496	14	4	1,404
Pacific coast	.....	2	17	40	35	.....	.....	93	699	134	94	.....	461	6	100	1,681
Great Lakes and rivers	10	.....	12	10	42	8	.....	48	809	59	31	4	789	19	5	1,846
Total	21	2	79	197	202	8	1	480	4,168	539	304	17	3,481	53	184	9,736

[1] Unlimited.
[2] Great Lakes, lakes, bays, and sounds.
[3] Tugs and towboats and freight vessels under 500 tons (miscellaneous.)
[4] 12 months deck or 24 months other departments.

NOTE.—There were no Panamanian employment cards issued.

CREW SHORTAGE REPORTS FROM 1 NOVEMBER TO 30 NOVEMBER 1946

These Reports Submitted in Accordance With Navigation and Vessel Inspection Circular No. 34, Dated 1 May 1943

Region	Number of vessels	Ratings in which shortages occurred												Total
		Chief mate	Second mate	Third mate	Radio	Able seamen	Ordinary seamen	Chief engineer	First engineer	Second engineer	Third engineer	Qualified member engine department	Wiper or coal passer	
Atlantic coast	19	.....	.....	.....	1	13	6	.....	.....	1	2	9	2	34
Gulf coast	16	.....	1	4	1	11	8	.....	.....	.....	3	9	6	43
Pacific coast	2	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	2	.....	3
Great Lakes	130	.....	.....	8	.....	57	27	.....	1	3	25	83	62	266
Total	167	.....	1	12	2	82	41	.....	1	4	30	103	70	346

WAIVERS OF MANNING REQUIREMENTS FROM 1 NOVEMBER TO 30 NOVEMBER 1946

Authority for These Waivers Contained in Navigation and Vessel Inspection Circular No. 31, Dated 13 March 1943 and Navigation and Vessel Inspection Circular No. 37, Dated 6 July 1943

Region	Number of vessels	Deck officers substituted for higher ratings	Engineer officers substituted for higher ratings	Able seamen substituted for deck officers	Ordinary seamen substituted for able seamen	Qualified members of engine department substituted for engineer officers	Wipers or coal passers substituted for qualified members of engine department	Wipers, coal passers or cadets substituted for engineer officers	Ordinary seamen or cadets substituted for deck officers	Total
Atlantic coast	328	45	85	7	609	25	80	6	6	863
Gulf coast	135	15	26	2	288	14	8	9	1	363
Pacific coast	46	8	8	1	97	.....	15	.....	.....	129
Great Lakes	125	1	6	.....	257	1	82	.....	.....	347
Total	634	69	125	10	1,251	40	185	15	7	1,702

U. S. GOVERNMENT PRINTING OFFICE: 1947