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Features

WE CAN TALK OUR WAY TO SAFETY

OIL POLLUTION SURVEY OF THE MAIN PORTS FROM BOSTON TO NORFOLK

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OF THE

MERCHANT MARINE COUNCIL

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The Merchant Marine Council of the United States Coast Guard

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COMMENDATION TO SS BLUE GRASS STATE

SHOWN in the picture above is the crew of the SS *Blue Grass State* at the presentation of the award. In the front row, from left to right are: Mr. E. E. Davis, marine superintendent; Capt. E. Lewis, States Marine Lines; Mr. L. H. Quackenbush, vice president, States Marine Lines; Capt. Fred Arnold, Master, SS *Blue Grass State*; and Capt. C. B. Lambert, USCG.

The Master, officers and crew of the SS *Blue Grass State* were recently presented with a commendation by Mr. L. H. Quackenbush, vice president of States Marine Lines, for their outstanding performance in rescuing 11 survivors from the ill-fated Mexican MS *Sinaloa* on October 28, 1959 off Manzanillo, Mexico. The MS *Sinaloa* foundered there during a tropical storm which also took several lives on the mainland.

The States Marine Lines' vessel which was proceeding from Coos Bay to Panama first sighted 4 of the *Sinaloa's* survivors hanging on to an overturned lifeboat during the early hours of the morning on October

COAST GUARDSMAN ASSISTED BY ITALIAN LINER

The Ship's Plot Center of the *Atlantic Merchant Vessel Reporting* (AMVER) system, in the office of the Commander, Eastern Area, New York, quickly plotted a merchant vessel with a doctor on board when Coast Guardsman John W. Darlington, Jr., Engineman Third Class, serving on the CGC *Humboldt* on Ocean Station ECHO, recently suffered an eye injury and required immediate medical assistance.

The nearest vessel with a doctor (as determined by AMVER) was the Italian Liner *Augustus*. A rendezvous was effected with the *Humboldt* and Darlington was transferred to the *Augustus* for medical attention and transportation to New York. This permitted the CGC *Humboldt* to continue her duties on ocean station.

Show above, after the *Augustus* docked in New York, Darlington, right, is thanking Captain Armando Pinelli, master of the *Augustus*, for stopping his ship in the middle of the Atlantic and rendering medical assistance to him.

Plotting activities of the AMVER system continue its growth. In November 1959, 1,816 separate vessels were plotted on 4,022 passages in offshore waters. In October, there were 1,713 vessels and 3,793 passages. Vessels sending AMVER for their first time were 98 in Novemher, compared to 87, and 97 in October and September, respectively. The efficiency of this safety program depends on the greatest number of ships participating in AMVER.

28th. After picking up these men, the *Blue Grass State* continued searching a wide area of debris for other survivors. Altogether, 11 survivors, several in critical condition, were picked up through the alertness of the vessel's personnel.

As heavy swells were running in the aftermath of the storm, the operation was conducted under extremely adverse conditions, but the vessel continued the search throughout October 28th. On October 29th, when conditions permitted the disembarking of survivors in Manzanillo, the vessel was relieved from further duties as local authorities took over search operations.

The commendation reads as follows:

> In recognition of the intrepid performance of the Master, officers and crew of the SS *Blue Grass State* for their outstanding performance in rescuing 11 survivors from the storm-stricken MS *Sinaloa* on October 28, 1959.

The following letter was sent to Captain Fred L. Arnold, Master of the *Blue Grass State* by the Commander, 8th Coast Guard District:

> The action of you and your crew in connection with the rescue of the ill-fated MV *Sinaloa* is in keeping with the finest traditions of the American Merchant Marine. The Coast Guard takes great pleasure in commending you and your crew for this service.

WE CAN TALK OUR WAY TO SAFETY

By Harry G. Schad

Chairman, Joint Executive Committee for the Improvement and Development of the Philadelphia Port Area

AERIAL PHOTOGRAPH of the Delaware River and traffic thereon within Philadelphia Harbor. *Courtesy Delaware River Port Authority.*

SHIPPING INTERESTS trading to the Philadelphia Port Area are pursuing a voluntary program which is expected to open the way to a new concept of maritime safety. Basically, this is a human-interest endeavor with the express purpose of saving lives and property. This goal is to be achieved through the use of easy-to-operate, low-cost radiotelephone equipment instantly available to the man on the bridge which will permit the navigators of vessels, in close situations, to impart to each other their intentions and actions—and thus help to avoid collision.

BRIDGE-TO-BRIDGE COMMUNICATION

There have been proposals in the past that all ships be equipped with low-power bridge-to-bridge VHF (Very High Frequency) radiotelephones as navigational instruments to enable navigators to impart their intentions and actions in order to avoid collisions.

Bridge-to-bridge communication has been used successfully for years on the Great Lakes, predating even the introduction of radar, and it is being used in several ports throughout the world in conjunction with radar. In the Delaware River, between Philadelphia and Morrisville, bridge-to-bridge communication has proved to be a valuable aid in navigating the large ore ships.

BONNER COMMITTEE

The special committee of experts which was appointed to study the *"Stockholm/Andrea Doria"* collision recommended to the Bonner Committee, (Committee on Merchant Marine and Fisheries, House of Representatives), among other things, the study of the possibilities and desirability of bridge-to-bridge direct radiotelephonic communication and noted that "* * * the bridge radiotelephone is universal on large ships sailing the Great Lakes and it has proven its worth on those waters as an important navigational safety tool, but its advantages have not been fully exploited on the high seas." (The Bonner Committee's Safety of Life at Sea Study is aimed at avoiding tragedies similar to the *"Stockholm/Andrea Doria."*) Additionally, there has been official comment in various quarters deploring the fact that, while fishing vessels, noncommercial vessels, tugs, and Coast Guard vessels have radiotelephones in the wheel house, our larger commercial vessels continue to deprive themselves of this important navigational aid.

In all such discussions and comment, particular emphasis has been placed on the bridge-to-bridge radiotelephone as an adjunct to radar. In this respect, while radar is undoubtedly the greatest advancement in navigation since the introduction of the radio direction finder some 20 years ago, it is not a cure-all and its limitations must be fully appreciated. The "reflection plotter" has helped to some extent and various modifications of radar presentation, such as the "true motion radar," hold promise for the future, but the fact remains that radar alone still has many shortcomings. It is imperative that the "plot" be speeded up and radar manufacturers are working on this problem.

JOINT EXECUTIVE COMMITTEE

In May of 1957, the Joint Executive Committee assembled a Special Committee of navigational and communications experts, representing the finest talents available in these fields. It appeared to us that, regardless of that which the radar manufacturers might bring out in the future, we could make available to the navigator the means to provide accelerated information through communication by low-power bridge-to-bridge VHF radiotelephone. We recognized that while radar had extended the mariner's vision to let him see through fog, his sense of hearing and his power of speech should have the same extension in order to realize full advantage from this enhanced vision. It appeared to us that a short-range radiotelephone, used purely as a navigational aid, would help to bridge the gap which existed in communication between ships—particularly in inland waters such as the Delaware River.

Since it is common knowledge that many collisions have taken place during periods of good visibility, the benefits to be derived from the use of radiotelephone as a navigational aid would not be restricted to those vessels equipped with radar. From a review of the more recent collisions in the Delaware River, we were convinced that if the ships involved had been equipped with a navigational instrument to provide readily bridge-to-bridge radio communications several of the accidents could have been prevented.

RADIO TELEPHONE IN PILOT WATERS

In discussing the merits of the conventional 2–3 megacycle radiotelephone for this purpose in pilot waters, it was developed that—while this instrument is a desirable aid to safety and navigation in that advance information can be obtained regarding weather, as well as channel, anchorage, and traffic conditions—it would be of doubtful value for the purpose intended because of its wide coverage and susceptibility to interference from vessels far removed from the area of immediate interest. (It may be noted parenthetically that conventional 2–3 megacycle radiotelephone has been an invaluable aid in rescue work, also—a number of rescues can be attributed directly to timely messages received from small craft.) On the other hand, the VHF short-range radiotelephone, by its very nature and limited range, eliminates interference and holds solid contact in its area, thus providing uninterrupted communication.

At the International Telecommunications Convention in 1947, provision was made for a universal calling and safety channel designated 156.8 megacycles. In 1948 the Federal Communications Commission reserved a block of channels distributed about this center frequency to be used exclusively by the maritime services for safety, navigational, and operational purposes. In 1955, at the Baltic and North Sea Radio Telephone Conference, an informal agreement was reached to adopt essentially the same frequencies on an international basis and to use a system compatible with the United States system. This informal agreement was confirmed at the Hague Conference early in 1957. Accordingly, the way appeared to be open for the adoption of frequencies and equipment which would be useful not only locally but on an international scale as well.

A SAFETY PROGRAM

After considerable deliberation, and based upon the wealth of knowledge and experience contained within the Special Committee, a program was worked out which envisions non-costly, simple-to-operate, single-channel voice radio equipment which will be carried by all commercial craft (including government vessels) and which is instantly accessible to the navigator. The equipment ordinarily will be used solely for navigational exchanges but, secondarily, may be

The Joint Executive Committee for the Improvement and Development of the Philadelphia Port Area, composed of nineteen member organizations covering every phase of port activity, has been fostering port improvements of a concrete nature for the past seventy-one years. The purpose of the Committee is to combine the port thinking of its member organizations and to project that joint opinion so as to promote concerted action in matters affecting the Delaware River and its tributaries in their relationship to shipping.

In addition to channels, turning basins, and anchorages, the Committee is concerned with proper development and integration of such port facilities as bridges, highways, and piers. Legislative matters directed toward flood control and pollution abatement receive a full measure of support. Increased safety, a continuing goal, is a basic feature in the Committee's consideration of improvements to channels, anchorages, bridges, and other major facilities and of supplementary facilities such as navigational markers and lights. The ship-to-ship radiotelephone system described in this article is expected to be a major contribution toward increased maritime safety. The system, devised by the finest talent in the navigation and communications fields, has been accepted widely by industry. The planning and basic experimentation stages are essentially complete; efforts are now directed toward full operational status.

Inquiries regarding the radiotelephone system are invited and will be given personal attention. They should be addressed to Mr. H. G. Schad, Chairman, Joint Executive Committee for the Improvement and Development of the Philadelphia Port Area, Bourse Building, Philadelphia 6, Pa.

ED.

ABOUT THE AUTHOR

HARRY G. SCHAD, LL. D., vice president and general manager of transportation, the Atlantic Refining Co., a graduate of Girard College in Philadelphia, Pa., holds memberships, executive positions, and directorships in varied activities. Representative of these interests are directorships on the boards of American Dredging Co., Central-Penn National Bank of Philadelphia, American Shipbuilders & Shipowners Mutual Insurance Co., Transportation Mutual Insurance Co., Quaker City Insurance Co., and Philadelphia Belt Line Railroad Co. He is chairman of the joint executive committee for the improvement and development of the Philadelphia Port Area; chairman of the mayors' committee on port promotion; president and a director of The Philadelphia Maritime Exchange; on the board of directors of the Water Resources Association of the Delaware River Basin; on the board of managers of American Bureau of Shipping; on the board of directors of the Transportation Association of America. He is a trustee of Bucknell University and of Tabor Home for Children, and trustee of the Estate of Stephen Girard, Deceased. He has been admitted to practice before the Association of Interstate Commerce Commission Practitioners and the United States Maritime Commission.

used for scene-of-action communications involving any maritime emergency; for this reason there should be no geographic restriction on its use. Language differences are not expected to present a problem.

The equipment either will be fitted on the vessel or will be brought aboard by the pilot. It must be monitored continuously and be instantly available for use. Each vessel must be able to hear navigational exchanges between other vessels in the vicinity. For these reasons the navigational exchanges will be conducted best on a single-channel (simplex) basis, completely independent of any other communication services of the vessel. The calling-working system [1] will not be used.

It is anticipated that this equipment will furnish, also, the voice circuit for a system of marine identification [2] for use with radar which may be developed and agreed upon in the future.

Multichannel equipment can be used, but input power must be reduced to 15 watts on the navigational channel, and the equipment should be designed to revert to the allocated frequency when not being used otherwise.

The radio frequency, which was assigned upon our application to the FCC, will be available in all areas to:

1. commercial vessels, regardless of size;
2. Government vessels;
3. Other craft, upon showing of need;
4. bridge and lock control;
5. other shore based stations controlling navigation, upon showing of need.

In no case will the frequency be authorized for use on a vessel not otherwise fitted with other frequencies or equipment for general communication purposes. The purpose of such limitation is to remove, insofar as possible, any valid reason to use the "navigation" frequency for unauthorized purposes.

Authorized use of the frequency will be restricted to:

1. exchanges of navigational information pertinent to the current passage of the vessel;
2. scene-of-action communications involving any maritime emergency (If internationally adopted this would meet the need of a common scene-of-action channel for vessels, international aircraft, and rescue facilities.);
3. brief test transmissions; and
4. any particular voice procedural applications for radar identification which may be developed in the future.

FEDERAL COMMUNICATIONS COMMISSION

All the foregoing information and planning was presented to the Federal Communications Commission when we requested the assignment of a navigation and scene-of-action frequency together with the related adjustment of certain provisions of the FCC Rules and Regulations.

In its Report and Order, adopted on April 2, 1958, the Commission revised certain of its rules and regulations, while at the same time denying the petition of the Joint Executive Committee on the basis that existing FCC rules and regulations were sufficiently flexible to permit the desired type of operation.

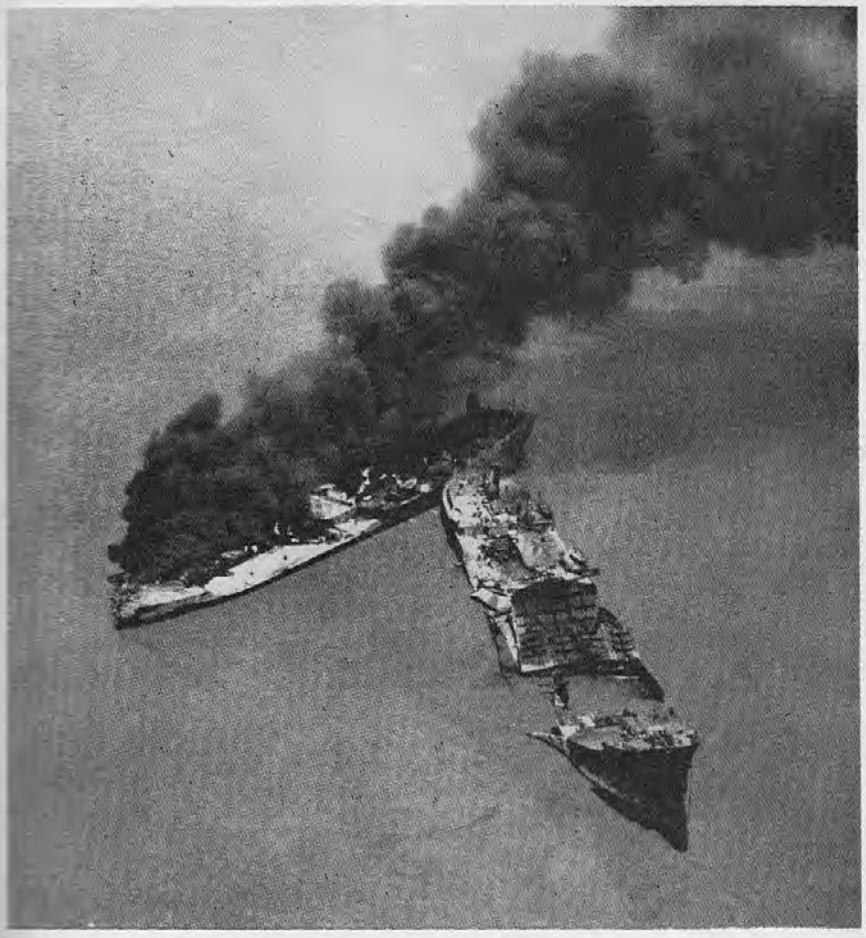
Inasmuch as this action was contrary to the general sense of our original petition, the Joint Executive Committee brought this to the Commission's attention on April 29, 1958, and requested that this action be reconsidered.

Subsequently, RTCM (Radio Technical Commission for Marine Services) Special Committee SC–39, which was established for the immediate purpose of complying with recommendation four of the Bonner Report (pertaining to bridge-to-bridge radiotelephones), recommended that, if early voluntary evaluation and implementation of bridge-to-bridge radiotelephone is desired, the FCC regulations should:

CHART SHOWING the Delaware River from Trenton to the sea and also including the Chesapeake and Delaware Canal connecting the Delaware River with the Chesapeake Bay. *Courtesy Federal Reserve Bank of Philadelphia.*

[1] Calling-working system is a term used to describe a method of multichannel communication where the calling is handled on one frequency and, after contact is established, both parties shift to another frequency for working.

[2] Marine identification as defined in RTCM Report SC–16: "identification"—the ability to identify or designate a particular radar response as being from a unit whose identity is known, or can be made known by its association with a particular communication.



TWO TANKERS which collided, caught fire, and were essentially total losses. This is an illustration of what the Joint Executive Committee believes bridge-to-bridge radiotelephone can avoid.

"(a) Designate a specific VHF frequency which may be used for navigational exchanges in open waters, inland waters, and in port areas.

"(b) Authorize exemption from multi-channel requirement for equipment operating only on a single frequency if the equipment is authorized solely for navigation and scene-of-action purposes, provided the ship station is fitted with and authorized for other maritime mobile service frequencies or equipment to meet the general and safety communication needs of the vessel."

In response to the Joint Executive Committee's second petition and the RTCM Committee SC–39 recommendations, the Federal Communications Commission, on July 29, 1959, adopted its Second Report and Order, favorable to our petition. (Frequency 156.65 mc has been assigned.) In fact, the FCC, in authorizing our program on a developmental basis, has gone even beyond its customary practice and has granted a more liberal initial licensing period than it usually does. All untried radio services are established under a developmental license, and it is obvious that, if this operation is shown to be "in the public interest, convenience and necessity" and is shown, in fact, to enhance safety of navigation, then there should be no question of its establishment on a regular basis.

AN EVALUATION PROGRAM

Since the time that we first met to work out and seek establishment of an evaluation program, there have been additional collisions between radar-equipped vessels, notably the *"Constitution/Jalanta"* and the *"Santa Rosa/Valchem."* In each case, these vessels observed the other on their radar scopes and took what they thought was appropriate action to avoid a collision. Had there been a means available for direct bridge-to-bridge radio communication, we believe that most, if not all, of these collisions could have been avoided.

The collision of the *"Mission San Francisco"* and the *"Elna II"* (March 7, 1957, in the Delaware River), the collision of the *"Andrea Doria"* and the *"Stockholm"* (March 25, 1956, in the vicinity of Nantucket Island), and the collision of the *"Israeli/American Press"* (October 29, 1959, near the Statue of Liberty) all occurred when visibility was good. There were known to be 60 lives lost in these three collisions; two of the vessels sank; and many millions of dollars were lost. We believe that these collisions might have been avoided through the utilization of the VHF bridge-to-bridge radiotelephone system for the use of which we are pressing in the Philadelphia Port Area.

We all are well aware of the consternation, both public and official, that these collisions caused and of the demand that the shipping people do something about them. Indicative of this continuing pressure, Senator Magnuson, Chairman, United States Senate Committee on Interstate and Foreign Commerce, wrote the American Merchant Marine Institute on August 10, 1959, asking what steps were being taken by industry to minimize and eliminate collisions between vessels and requesting answers to specific questions, including what projects were in progress regarding the development of bridge-to-bridge radiotelephones. We are fortunate that our program was conceived and under development before this mounting pressure. We believe the bridge-to-bridge radiotelephone system which we have adopted will be a progressive step in the direction of reducing the number of serious accidents.

NOTICE

THE Merchant Marine Council Public Hearing described in the January issue of the *Proceedings* has been postponed from 21 March 1960 until 4 April 1960.

NOTICE

REGULATIONS of the Congressional Joint Committee on Printing and Binding require annual verification of all mailing lists maintained for the purpose of free distribution of Government publications.

All addressees on the mailing list for the Proceedings have been sent a card requesting that an affirmative reply be returned to the Commandant (CMC), United States Coast Guard, Washington 25, D.C.

OIL POLLUTION SURVEY OF THE MAIN PORTS FROM BOSTON TO NORFOLK

DEPOSITS OF OIL in an East Coast harbor. What are you doing to alleviate these conditions?

The following article has been furnished to the USCG Oil Pollution Panel for use in these Proceedings by the American Petroleum Institute, Division of Transportation. The majority of the material is extracted from the report, "Oil Pollution Survey of the United States Atlantic Coast," by John V. Dennis, copyrighted by the API in 1959.—Ed.

THE AMERICAN PETROLEUM INSTITUTE, through its committees of industry representatives, has been active in pollution abatement work for some 35 years, during which time ocean shipping has steadily increased. In the early 1950's, reports of pollution along the Florida east coast increased and there was much apprehension in that area. The Florida Straits is one of the most heavily used ship passages in the world, carrying every conceivable type of cargo it is possible to load into a ship.

Tankers, by the very nature of their cargo and operation, are automatically the prime suspects in the eyes of the uninformed public. The API Committee on Tank Vessels and its Oil Pollution Abatement Group, the Oil Pollution Panel of the U.S. Coast Guard's Merchant Marine Council, and the National Oil Pollution Committee, found that they were handicapped in their abatement work by not having accurate and reliable information on the extent to which oil was being deposited on the Florida beaches, and factors influencing its deposition.

In November 1957, the API Central Committee on Transportation by Water, the parent committee of all API committees and groups dealing with water transportation, voted to engage the services of an observer. In December 1957, the Pollution Abatement Group under whose guidance the program was carried out, retained John V. Dennis. Mr. Dennis was educated in geology, holds a degree in Political Science, and a masters degree in biology with ornithology and botany as his major and minor. His reporting ability was developed during work with the U.S. Army Signal Corps, the National Park Service, the U.S. Fish and Wildlife Service, and the Audubon Society.

In January 1958, an observation program was instituted in the Miami region of the Florida east coast. Under this program, all deposits (animal, vegetable, and mineral) on three preselected beach sites, each 100 feet long, were collected and analyzed daily, and the site then raked clean. This procedure was carried out for

1 year and the information thus gained highlighted many of the factors influencing pollution.

CLASSIFICATION OF OIL FOR SAMPLING PURPOSES

At the initiation of the Florida study it was found, upon examining beach samples, that stranded oil could be conveniently divided into six distinct groupings. These groupings were not based upon kinds of grades of oil found but upon the consistency or texture of the oil. One grouping was based both upon consistency and the amount of small shell particles adhering to the oil. The following oil classes were established:

1. oil, liquid film covering either beach or water surface,
2. oil, sticky, very soft, and often sand coated,
3. oil, nonsticky, puttylike, doesn't crack when worked,
4. oil, nonsticky, cracks when worked,
5. oil, solid, nonworkable,
6. or coquina oil, a rather brittle mixture of shells, shell particles, oil, and sometimes sand—often smooth and worn looking. This term was derived from the name of a soft rock occurring commonly in Florida and which consists wholly of small shells and shell particles.

As the Florida program progressed it was evident that much valuable information was being collected. On this basis, it seemed most desirable to extend the program to cover the entire Atlantic seaboard, and Mr. Dennis proceeded to Nantucket, another troubled spot, after arranging for a substitute observer.

After Nantucket, he covered coastal harbors and beach resort areas from Boston to northern Florida, which, in conjunction with observation trips made while in Florida, gave coverage from Key West to Boston. This phase of the program was concluded in late January 1959.

The following sections of this article set forth pollution conditions in ports from Boston to Norfolk as Mr. Dennis found them and indicate those areas where particular care on the part of ships' crews is of paramount importance.

CONDUCT OF THE PORT SURVEY

The study of harbor pollution by oil was undertaken concurrently with the survey of coastal conditions. Special attention was given to harbor and industrial areas in or adjacent to Boston, New York City, Philadelphia, Baltimore, and Norfolk.

A description of the overall aspect of a harbor was considered to be more important than obtaining weight samples from a few odd corners here and there. For this reason every effort was made to see all sections of open water and waterfront in and around the ports visited. Thanks to the very fine cooperation of the U.S. Coast Guard at Norfolk and Baltimore and the U.S. Army Corps Engineers in New York and Boston, these waterfronts were covered with the aid of tugs and patrol boats.

In describing the conditions of a port area in regard to oil pollution, the following was noted:

1. a rough estimate as to the amount of open water in various sections of a harbor covered by an oil film,
2. thickness and color of floating oil,
3. amount of oil adhering to pilings and wharves,
4. presence of oil at sewer outlets,
5. any other obvious sources of oil pollution,
6. extent of industrial concentration.

In addition numerous photographs were taken to illustrate, whenever appropriate, the points mentioned above. Far more reliance was placed upon personal interviews than when seeking information on pollution of coastal beaches. In the course of the harbor studies, the observer was in close touch with persons who, either by reason of their law enforcement duties or association with the oil industry, had an intimate knowledge of oil pollution problems.

BOSTON HARBOR AND VICINITY

In tonnage of cargo handled Boston is well below the other four ports visited. The Charlestown Navy Yard and other naval facilities in the area account for additional shipping. On January 22, 1959, a tour was arranged by the Army Corps of Engineers to view, from the water, the main docking and waterfront industrial areas in the region. In the vicinity of Boston, the Charles, Mystic, and Chelsea Rivers were visited and also Boston Harbor. Also a trip was made by water to Quincy where conditions were viewed on the Weymouth Fore River and Twon River.

Oil pollution observed on this trip was localized and in each instance confined to a limited area. The following oil sightings were noticeable enough to review here:

1. patches of oil on the water in the Mystic River near the Mystic River Bridge,
2. narrower sections of the Chelsea River with patches of floating oil,
3. several fairly heavy slicks off Charlestown,
4. several heavy dark slicks off South Boston,
5. heavy oil sludge coating pilings and stranded on beaches and seawalls in the Quincy area. Reportedly the third spill in this area in as many weeks.

While the total amount of oil pollution in the Boston area, judging from firsthand observations and accounts of those long familiar with conditions, is not seriously heavy, the problem is accentuated by the narrowness of docking areas and waterways. It seems almost incredible that some of the larger vessels can get into the narrow confines of the Mystic and Chelsea Rivers. Oil spills in such places must be largely absorbed by pilings, seawalls, and bulkheads along the shore. The blackened condition of the shoreline in places indicated the extent of earlier oil pollution. More open waters about Boston Harbor, Dorchester Bay, and Hingham Bay, on the other hand, appeared remarkably free of oil pollution.

No one source seemed more responsible than any other for pollution in the area. Probably a fair amount of the trouble comes from accidental spills in connection with the unloading and storing of oil. Intentional discharges of oily water from bilges and ballast tanks, while undoubtedly occurring, did not loom overly large in importance in the minds of Army Engineer personnel questioned.

NEW YORK HARBOR AND VICINITY

This, the country's busiest seaport, is well endowed by nature with deep channels and broad watercourses. The tidal action of the Hudson helps move any oil and debris downstream from Manhattan. The main oil pollution problem in the area appears to be in the region of the Upper Bay and the system of waterways lying between Staten Island and New Jersey. On January 12, 1959, the observer boarded the Army Engineer Tug *Active* and was taken on an all-day trip through the areas just mentioned and also into Raritan Bay, the Lower Bay, and the approaches to New York Harbor off Sandy Hook.

Conditions were ideal for sighting oil. The day was clear, calm, and seasonably warm. Oil conditions were found to vary considerably with the tide. Far less oil was observed during a flood tide during the morning than an ebb tide during the afternoon. The following observations represent maximum amounts of oil seen in any one area:

1. The entire surface of the Upper Bay (viewed from Bayonne Naval Base to Brooklyn and from the

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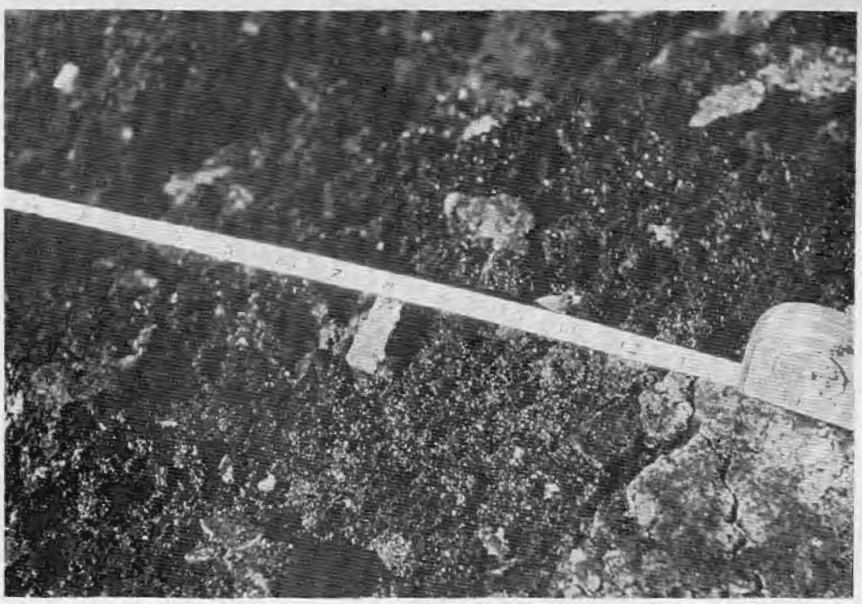


A CLOSE VIEW of a heavy widespread deposit of oil.

Battery in Manhattan to the Narrows) was covered with a very light film of oil.

2. Oil was almost constantly in sight in Kill Van Kull between Staten Island and Brooklyn. There was continuous oil slick in the vicinity of the Bayonne-Staten Island Bridge.

3. Scattered patches of oil at south end of Newark Bay were noted.

4. Oil was seen in most parts of Arthur Kill along the western side of Staten Island, particularly noticeable on the ebb tide at creek outlets.

5. A thin film of oil extended northward over the Lower Bay to a distance about half way between there and Sandy Hook.

As this résumé suggests, the most serious oil pollution problem in the area exists in the Kills between Staten Island and New Jersey. On ebb tides oil from this area is carried into the Upper Bay and hence its effect can be seen over a wide area. The oil industry is heavily concentrated along the Kills. There is hardly a mile of shoreline that isn't dotted with oil storage tanks or that doesn't contain at least one big refinery. In addition, numerous other industries are located here.

Such a heavy concentration of industry, as exists here, imposed upon waterways scarcely wide enough to accommodate ocean going vessels is in itself a major obstacle to solving the oil pollution problem. In addition, the past history of the petroleum industry here goes back some one hundred years. Under less modern methods of handling, spills were more common and thereby the surrounding marshes and creek bottoms became saturated with oil. This oil is still present in large amount and contributing to present pollution. Great sums have been spent in recent years by the oil companies in combating the problem. Besides modernizing terminals, pipelines, and other facilities, the oil companies have spent millions of dollars in installing steel bulkheads to protect water courses from oil seepage. Also dikes and flood-gates have been installed to seal off some of the heavily contaminated marshland.

In spite of these improvements, oil from past incidents still finds its way into areas where it isn't wanted. Creeks draining marshland bring considerable quantities of oil into the Kills. This was especially noticeable on the ebb tide. After heavy rains this situation, reportedly, is much more pronounced. Other old deposits lie in the mud on the bottom of the Kills. Passage of shipping brings such oil to the surface from time to time. And causing even greater disturbance to such deposits are dredging activities in this area.

Mention should be made of the fact that in 1888 the Supervisor of the Harbor of New York City became the enforcing agent in all matters regarding pollution. Prior to 1952 he was a naval officer. Now he is the Commander of the New York District Army Corps of Engineers. As elsewhere, the U.S. Coast Guard, as an agent of the Corps of Engineers, enforces laws dealing with oil pollution. The Corps of Engineers has responsibilities both in enforcement and administration of laws pertaining to such pollution.

PHILADELPHIA AND VICINITY

Philadelphia and adjacent municipalities have a long record of progress in combating pollution of all kinds. Thanks to an interested public, the cooperation of civic government and industry, the Delaware and its tributaries in this area are vastly improved in cleanliness over former years. It might be supposed that the heavy concentration of oil handling facilities and other industries along the Delaware would have imposed too many obstacles to permit such an achievement. On the contrary, however, the industries themselves have been foremost in the campaign.

On January 7 and 8, 1959 a thorough tour of waterfront industrial areas from Philadelphia south to Delaware City in Delaware was made. The only oil noted worthy of comment was as follows:

1. patches of oil in the area of Pier 179 in Philadelphia,

2. small patches near the Walt Whitman Bridge.

Special notice was taken to see if oil was coated on pilings, seawalls, shore bulkheads, and the like. Such structures everywhere appeared to be free of such coatings. Another sign of relatively clean water conditions was the frequency with which flocks of wild ducks were noted along the river.

Those questioned admitted that quite a bad oil pollution situation existed as recently as 3 to 5 years ago. They were agreed that at present oil pollution is at a very low level.

BALTIMORE

As with several other port areas visited, Baltimore Harbor can claim few natural advantages in trying to rid itself of oil and debris. The Northwest Branch of the Patapsco, where a large share of the port's industries and docking facilities are concentrated, is a dead-end waterway. Only by slow degrees can tidal action remove oil and other debris from the basin-like arm of the Patapsco River. Similarly the Curtis Bay section of the harbor, although wider, has very little natural flow.

Baltimore Harbor was visited on three different dates. On November 23, 1958, certain waterfront areas were visited on foot. Deposits of oil and other objectionable waste on harbor beaches formed layers up to 6 inches thick. Water offshore was found to be filthy and ill-smelling from sewage and other wastes. Conditions were found to improve quite rapidly outside the narrower confines of the harbor. At Dundalk, halfway between downtown Baltimore and Sparrows Point, only 2

ounces of oil were found on a 100-foot beachsite.

Tours of the harbor, provided by the U.S. Coast Guard on December 18 and 28, confirmed observations made from the shore. On these trips oil was sighted as follows:

1. On December 18 the Northwest Branch was unusually clean according to Coast Guard personnel. Nevertheless, about half the water surface held a thin film of oil. In places oil was in the form of a heavy slick. On December 28 practically the entire surface of the Northwest Branch was covered by a film of bluish oil.

2. Curtis Bay was visited on December 18; several long slicks composed partly of oil and partly of coal dust, other debris and refuse mixed in with this were seen.

3. There were several patches of oil in the open harbor between Fort McHenry and Sparrows Point.

The consensus of opinion of those talked to about Baltimore Harbor is that the overall pollution picture is very bad. Oil pollution is just one part of a problem that includes need for adequate treatment of sewerage, chemical waste, and other industrial waste. Another problem in the harbor is the great amount of floating lumber, logs, and trash of various kinds. This material is cause of frequent damage to ships' hulls and propeller blades.

Sources of oil pollution appeared to be about the same as for other harbors. There was evidence in the form of slicks off sewer outlets that a good bit of oil reaches the harbor by way of the sewerage system. Discharge of oily wastes undoubtedly occurs, but it is difficult to assess the amount of pollution from this source. Mention was made by Coast Guard officials of the fact that oil companies in the area had recently standardized their hoses and hose couplings at loading facilities. This innovation was expected to cut down on the amount of accidental spillage.

NORFOLK, HAMPTON ROADS, AND NEWPORT NEWS

Port facilities here primarily accommodate naval vessels and dry cargo ships. Cargo carriers anchor in Hampton Roads upon arrival. Often it is necessary for them to wait here either until there is docking space or a cargo is ready.

Coast Guard officials pointed out that there was a difficult oil pollution problem in the area.

On December 5 a tour of the Elizabeth River, which lies between Portsmouth and Norfolk, and Hampton Roads was made. On December 13 a second tour, this time by small patrol boat, was made of the Elizabeth River and its branches and of waters off the Norfolk Navy Base.

On these trips oil was sighted as follows:

1. large slick in the Elizabeth River on December 5, about half the river surface covered by a light film of oil, piers, pilings, etc., all along the river heavily covered with oil,

2. off Newport News small oil slick observed.

It can be said that the entire length of the Elizabeth River devoted to shipping and industry is heavily saturated with oil. This is revealed not only by the presence of oil slicks but pilings and bulkheads appear to have reached the saturation point in the amount of oil they can absorb. The wash in the wake of ships moving along the channel is sufficient to stir up oil from the bottom and cause it to reappear on the surface.

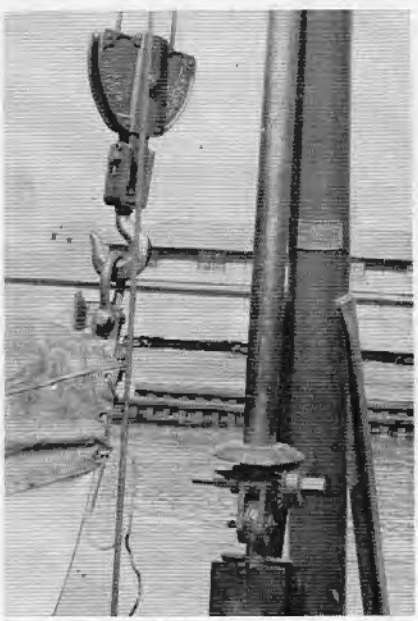
There is undoubtedly a difficult problem in this area. The Coast Guard appears to be working hard to get the situation under control and apparently is meeting with some success.

The Oil Pollution Panel wishes to express its appreciation to the American Petroleum Institute for making this information available and trusts that the crews of vessels in the U.S. Merchant Marine will do everything within their power to improve conditions in those areas where the above facts indicate the need for intensification of anti-pollution efforts.

NO MAINTENANCE PLUS ZERO WEATHER

By LIEUT. COMMANDER EDWARD F. OLIVER, USCG

SOMETIMES lack of equipment maintenance on the part of shipboard personnel is detected and corrected when the equipment begins to function improperly. Occasionally the first notice of poor maintenance is when the equipment fails. Such was a recent case when lack of maintenance and below freezing temperature resulted in a failure of the lifeboat davits. Fortunately the failure was detected during the winter layup before the crew were exposed to serious injury through the use of the lifeboats.



The davits were sheath-screw, boom type, usually found on Liberty type vessels. The sheath is a steel, seamless welded sleeve, approximately 6 feet long, which houses the screw. Alemite grease fittings are fitted at the base of the sleeve and near the top is a ¾-inch hole which can be closed by a bronze plug. The design specifications call for the sleeve to be filled with oil, type SAE 90, to the level of the plug.

During the installation of the davits on the ship the year before, the shipyard personnel did not fill the sleeve with oil, and the shipboard personnel never bothered to check the oil level. Over the months the sleeve filled with rainwater. During the winter layup season the temperature dropped near zero and as the entrapped water froze it expanded causing the sleeve to fracture. If the sleeve had been filled with oil as designed, there would have been no water to freeze.

Although the freezing temperature directly caused the sleeve fracture, the situation which existed where the davits were not properly lubricated by the crew is deplorable and a prime example of poor seamanship. The lack of oil greatly increased the screw friction and probably quadrupled the optimum time necessary to swing the davits out to the extreme lowering position. With lifesaving equipment, time is of the essence and time lost because of failure to properly maintain the equipment cannot be excused.

Although most ships are generally operated in temperate zones where freezing temperatures are rarely experienced, personnel should be aware of what can happen and make sure that all equipment, whether it is cargo-handling or lifesaving, is properly maintained.

MARITIME SIDELIGHTS

The proposal of the American President Lines, Ltd., to purchase the SS *Leilani* has been approved in principle by the Maritime Administration. It is understood that APL wishes to operate the *Leilani* in conjunction with three other passenger vessels now operating in its trans-Pacific service.

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The installation of an oil purification system, which removes the slag-causing sodium content of bunker "C" fuel aboard the Supertanker *Atlantic Seaman*, has proven a success according to an article in the *Atlantic Marine News*. So much importance has been placed on the success of the new unit that similar installations are projected for both the *Atlantic Engineer* and the *Atlantic Navigator*, sister ships to the *Seaman*.

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The Federal Maritime Board has named the Bethlehem Steel Co.'s Sparrows Point shipyard as low bidder for the construction of three cargo-passenger container ships for Grace Lines, Inc. Each vessel, when completed, will carry 78 passengers, 147 cargo containers, and have 409,600 cubic feet of refrigerated cargo capacity. The ships, which will replace Grace vessels in service between the United States east coast and the west coast of South America, will be registered at 14,000 gross tons, with a service speed of 20 knots.

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The American Waterways Operators, Inc. is stepping up its nationwide safety program for the shallow draft water carrier industry in a concentrated effort to reduce personal injury accidents and thereby lower its transportation costs to the shipping public, according to Mr. F. A. Mechling, chairman of AWO's Safety Committee. A key part of the Association's program to increase its industrywide efforts in 1960 will be to promote greater participation in the Barge and Towing Vessel Industry Safety Contest which is sponsored jointly by AWO and the National Safety Council.

COMMENDATION

LIEUTENANT COMMANDER John D. McCann, U.S. Coast Guard, left, is being presented the Coast Guard Commendation Medal by Rear Admiral Henry C. Perkins, USCG, Commander, Third Coast Guard District, during ceremonies held 24 November 1959. Mr. McCann earned the Commandant's citation for "meritorious performance of duty on 7, 8, and 9 August 1958 while serving as Commanding Officer of the buoy tender USCGC *Laurel*, based in Rockland, Maine, engaged in rescue operations after the collision between the SS *Gulfoil* and the MV *S. E. Graham* in the vicinity of Fort Adams, East Passage, Narragansett Bay, R.I.

The citation, which was signed by Vice Admiral Alfred C. Richmond, Commandant, U.S. Coast Guard, continues:

"Shortly after hearing the loud crash and cries of men in the water, rescue tactics were begun under the guidance of Lieutenant Commander McCann. Although hampered by zero visibility and the proximity of two burning tankships, the men of his command succeeded in saving eleven lives and recovering two bodies. Navy, Coast Guard and Air Force units, under his direction as Acting On Scene Commander, saved a total of thirty-four seamen from the damaged tankers. His prompt and skillful action, involving the towing of the flaming *Graham* from a position that imperiled shipping facilities in the Newport area to a location free of such potential danger, is credited with preventing additional loss of life and property. Lieutenant Commander McCann's courage, initiative, sound judgment and unwaivering devotion to duty is in keeping with the highest traditions of the United States Coast Guard."

The Alaska Steamship Co. has completed the replacement of all its refrigerator ships with controlled-temperature van service, according to an announcement by Melville McKinstry, vice president and general manager of the line.

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A new training program to prepare San Francisco firemen for battling fires aboard ships on the city's waterfront was inaugurated aboard the SS *Matsonia*. Rookie and veteran firemen will periodically tour Matson ships to learn the location of fire-fighting equipment and study some of the problems involved in fighting shipboard blazes.

The United States-St. Lawrence Seaway Development Corporation at Massena, N.Y., estimated that the seaway would handle 6,600 ships, carrying 20 million tons of cargo, in its first year of operation. Although the volume fell short of the 25-million-ton aim this year, twice that annual volume is expected in 5 or 6 years. The figures do not cover the 600 yachts and other small noncommercial vessels which have used the waterway in 1959.

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Improvements in world port facilities have opened a new era in the size of tramp vessels engaged in the hauling of dry cargo. Attention has been turned toward the type of vessel exceeding 14,000 deadweight tons according to a report by W. G. Weston, Ltd., of London, shipping analysts, in the Journal of Commerce.

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With ship transits at a peak, gross revenues of the Panama Canal Company were up more than $4 million during the 1959 fiscal year, according to the New York Times. Net operating revenue rose only $327,150 above the previous year's figure. The comparatively small increase in net operating revenue, despite exceptionally good business, resulted from heavy capital investments in improvements to meet the rising demands of world shipping and sharply rising operating costs.

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The world merchant marine scored several growth records in the year ending June 30, 1959. In reaching the 125 million gross-ton mark, it almost doubled in size in the last two decades. Three maritime nations that lost heavily in World War II—Japan, Germany and Greece—now have larger merchant fleets than those they had in 1939. More than half the annual growth was in tankers, with Liberia, a country that had virtually no fleet in 1939, emerging as the largest tanker owning nation .

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The *Gulfspray,* the latest addition to the Gulf Oil Corp.'s fleet, was recently launched at Sparrow's Point shipyard. She will increase the company's newly constructed U.S. flag tanker tonnage to 247,600 deadweight, according to reports in the maritime press. The Gulfspray is the fourth of six new 29,250 d.w.t. tankers under contract to be built at the Bethlehem Steel Co.'s yard.

ACCIDENTS IN BRIEF

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

CAUSE	EFFECT
Picked up hot pot with bare hands	Burns on both hands.
Stepped into bucket while washing down bridge overhead	Lacerations which developed into traumatic ulcer.
Became entangled in messenger while lowering fender over side	Fell over side. Suffered multiple contusions.

Stepped on manhole cover — **Fractured fifth metatarsal.**

While painting overside, leaned too far out from stage	Fell to floating stage. Back injuries.

Fell asleep with burning cigarette which fell into pant's cuff — **Deep burns to ankle. 9 days lost.**

Chisled off end of soot blower element without using safety glasses	Metal embedded in right eye. Incapacitated 30 days.

Settled gangway with his hand underneath — **Severe lacerations.**

Remained in his clothes which were wet with cement water	2d degree burns.
Unknowingly removed last bolt of defective safety guard	Severe finger lacerations.

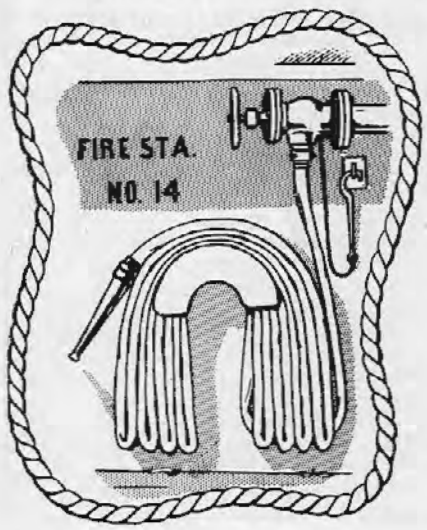
YOUR SHIP'S AND YOUR LIFE MAY DEPEND ON THE FIRE HOSE

By Arthur E. Wills, United States P. & I. Agency, Inc.

IN SPITE of modern fire fighting equipment such as CO_2 systems; dry chemical, foam and other types of fire extinguishers, etc.; a ship's main reliance for firefighting still is the old reliable waterline. Even that has been modernized by adoption of the fog nozzle. When a fire really gets going, it is the cooling and smothering effect of water which gives about the only effective hope of bringing it under control.

Yet, often that water system is neglected on board ship, particularly the fire hose and its fittings. All of you have heard stories about the golfer who died and failed to make the grade to heaven but found a beautiful golf course in the other place, with caddies, clubs and all the works but—no balls. * * * —well, that's how it would be to try to fight a fire on a ship with plenty of water and hose—but no nozzle. More than one unlucky sailor has found himself in just that spot.

So the number one precaution is to have those hoses always connected up to their hydrants; with nozzles attached; spanners on their chains nearby; and hoses coiled or faked in the racks so that they can be led out on the run. After all, U.S. Coast Guard Regulation 95.10–10(g) reads "Each fire hydrant shall be provided with a single length of hose with nozzle attached and a spanner * * * (h) Fire hose shall be connected to the outlets at all times. However, on open decks where no protection is afforded to the hose in heavy weather, or where the hose may be liable to damage from the handling of cargo, the hose may be temporarily removed from the hydrant and stowed in an accessible nearby location."



All that is pretty elementary, yet inspection after inspection on shipboard still reveals equipment missing; hose disconnected, improperly coiled or faked so as surely to kink in emergency; and hose full of water. Sometimes hose is not connected because the hydrants leak "and we don't want to rot the hose." In such case, fix the hydrant right away. And drain the hose after use. Of course, in some ports where pilferage is bad, it may be necessary to remove the nozzles and to store them in a secure but readily accessible place. When that is done, take pains to see that all hands know about it. Port fire drills can help.

In addition to instant readiness being one reason for keeping hose nozzles always attached, another reason is for the nozzles to protect the male screw threads on the hose couplings. Coil spare hose lengths so that the male end with the exposed threads is protected within the coils. Otherwise these screw threads may be damaged if a hose is dropped. If hose couplings are flattened or if the screw threads are burred, it may be difficult or even impossible to connect up hose in an emergency when you really need it—and time is short.

When coiling spare hose, double it with the male end on top, 4 or 5 feet short of the female end. Then roll it from the doubled end to the coupling ends to form a compact, easily handled package. Pass a piece of small stuff through the center and around the coil, just behind the female end, to prevent uncoiling. This keeps the two coupling ends handy and will permit rapid nncoiling when needed without damaging them. If one man has to do this and also hold the nozzle and turn on the hydrant in emergency, he can do so with maximum safety.

Never open a hydrant unless at least one man grips the nozzle firmly. Ease pressure into the hose gradually by opening the valve slowly. More than one man is necessary on each hose for safe control. Three men are none too many. A whipping nozzle can be deadly.

Test fire hose to full pressure during drills. That is a good time to check it for abrasions, torn or broken fabric—particularly just under the coupling—and for burred coupling threads and leaky hydrant valves.

FOR LACK OF A NOZZLE, A HOSE WAS LOST:
FOR LACK OF A HOSE, A SHIP WAS LOST:
FOR LACK OF A SHIP, A CREW WAS LOST.

MERCHANT MARINE STATISTICS

Maritime America has scored advances in 1959 and is "on course" toward solid gains in the "sensible sixties" ahead, according to the Maritime Administration in a year end report which summarized the Nation's Merchant Marine activity in the past year.

There were 923 active ships in the United States merchant fleet on December 1, 1959, 37 less than the number in active service on January 1. The total fleet stood at 3,070, against 3,127 on January 1. The privately owned fleet increased by 16 through delivery of 14 ships from new construction and 24 ships returned from foreign registry, while 15 ships were traded in to the Government on new construction and 7 were lost or otherwise disposed of. There were only 2 oceangoing ships transferred from the privately owned United States flag to foreign flags during the year.

Most of the decrease in the total number of ships in the fleet was accounted for by sale of ships from the reserve fleet for scrapping. A long-range program for disposal of ships from the reserve fleet provides for the scrapping of about 1,000 unstrengthened and damaged Liberty ships, over a period of years, with about 900 ships selected for retention as a nucleus for emergency use. Ships traded in on new construction will be placed in the reserve fleet, thus improving the quality of ships available for national defense purposes.

In addition to the subsidized lines' building programs there were on order in U.S. merchant shipyards on December 1, 1959, 22 tankers, 2 Great Lakes bulk carriers, 2 containerships and a ferry for private operators, and 3 ships for government account (the NS *Savannah*, a nuclear servicing barge, and a hydrographic survey ship), together with 6 merchant ship conversions, a total of 70 ships with a total estimated cost of $738.6 million. This was 15 ships less than the number on order on January 1, 1959.

Delivered during the year up to December 1 were 38 ships, consisting of 24 tankers (7 of them for foreign flags) and 3 bulk carriers, and 11 conversions (2 passenger ships, 5 freighters and 4 tankers) with a total estimated value of $337 million. Estimated for delivery in December were 3 tankers, a ferry, and two freighter and one tanker conversion, at an estimated value of $46.4 million, making a total of 45 ships valued at $383.4 million for the year.

nautical queries

Q. How do you rig an anchor buoy and how should it be handled for safety and efficiency when dropping or raising the bower anchors?

A. An anchor buoy line should be rigged around the crown or arm of a stockless anchor. In order to prevent the line being cut or abraded the part at the anchor should be of wire or chain for a few feet. Small line which should be long enough for the depth of water should lead from the end of the wire or chain to the buoy. The buoy should be sufficiently buoyant to float in a strong current with the weight of the line.

When the anchor is prepared for dropping, the buoy should be hung outboard by a piece of sail twine, or half a rope yarn which will part and drop the buoy with no danger to personnel on the foc'sle head, or the buoy should be thrown over prior to dropping the anchor. The buoy is best retrieved when the anchor is hove up with a hook secured to a long pole, or a grappling hook on a line.

Q. Your vessel is on course 300° True at a speed of 8 knots.

At 1200 a vessel is observed on the PPI scope bearing 325° True at a range of 9 miles.

At 1220 the vessel is observed bearing 325° True at a range of 6 miles.

(a) Assuming that both your vessel and the vessel observed maintain course and speed, determine the distance between your vessel and the vessel observed at their closest point of approach.

(b) Determine the course and speed of the vessel observed.

(c) Determine the course at 1230 which will clear the other vessel by 2 miles in the minimum length of time without changing your speed.

A. (a) The distance between your vessel and the vessel observed at the closest point of approach, assuming that course and speed were maintained, would be 0 miles (at 1300).

(b) The course of the vessel observed is 207.5°.

The speed of the vessel observed is 3.8 knots.

(c) 335.1°.

Q. (a) What is the base line, as it is used in the loran method of navigation?

(b) What is the base line extension, as used in the loran method of navigation?

A. (a) The base line of a pair of loran stations is the shorter arc of the great circle through the two stations.

(b) The base line extension of a pair of loran stations is the longer arc of the great circle through the two stations.

Q. (a) What will be the result of matching a first sky wave with a ground wave, or matching a first sky wave with a second sky wave in taking a loran reading?

(b) What precautions should be taken to insure that the first pulse in a train of pulses is not being overlooked?

A. (a) If, by mistake, a first sky wave from one station is matched with a second sky wave or the ground wave from the other station of the pair, the reading will be in error by 60 to 150 microseconds, and the resulting position will be in error by many miles. Corrections for matching ground wave and first sky wave are available for several locations.

(b) To insure that the first pulse in a train of pulses is not being overlooked, the signal should always be centered and the receiver gain turned up as far as the static conditions permit.

Q. If the pistons of a duplex pump were striking both heads, what would you do to prevent it?

A. Take out some of the lost motion. The bushings in the links, levers, or the saddle may be worn, and adjusting the lost motion in the valves will remedy this. The nuts regulating valve travel may be shifted closer together if there are two, and if only one nut is used a thicker nut may be fitted to take up lost motion.

Q. How is a constant supply of water assured to condensate pumps?

A. A recirculating line from the hotwell is provided so that when the condenser is pumped dry when maneuvering or when the engines are slowed down to such an extent that there is insufficient condensation to keep the pump sealed, the recirculating line may be opened and still give the pump a supply of water.

Q. State how the diameter of the wheel is related to propulsion efficiency.

A. High propeller efficiency is usually obtained with a large diameter wheel and with low shaft revolutions. Therefore, the largest diameter wheel that can be manufactured and accommodated in the hull structure is usually fitted to the vessel.

Q. What instructions relating to the steering gear shall be posted in the steering engine room on inspected vessels?

A. Complete instructions, relating in order, the different steps to be taken in changing to the emergency steering gear shall be posted in the steering engine room in at least one-half-inch letters and figures.

Q. Why is a rudder brake unnecessary on most vessels equipped with a hydraulic type steering gear?

A. Rudder brakes are unnecessary on vessels equipped with hydraulic steering if a suitable arrangement of stop valves is provided in the main piping, because with the stop valves closed the hydraulic ram and consequently the rudder will remain stationary due to the incompressibility of the liquid in the cylinders.

Q. At how many revolutions per minute is the directly-connected propulsion turbine turning when its synchronous propulsion motor is turning at 180 revolutions per minute? The generator has 2 poles and the motor has 30 poles.

$$\frac{\text{A. Generator r.p.m.}}{\text{Motor r.p.m.}} = \frac{\text{Number of poles in motor winding}}{\text{number of poles in generator winding}}$$

Therefore, generator r.p.m. $= \frac{30 \times 180}{2} = 2{,}700$ r.p.m.

and as the turbine is directly connected to the generator, the turbine is also turning at 2,700 revolutions per minute.

Q. What precautions should be taken before placing a propulsion motor in operation, assuming it to have been out of service for a considerable period of time?

A. Insulation resistance measurements of rotor and stator windings should be above 1.0 megohms; the motor should be examined for condition, i.e., no loose tools, parts, etc. The motor should be jacked over and turn freely. Lubrication and cooling (if any) should be ready. Observe the motor closely upon starting and periodically thereafter.

AMENDMENTS TO REGULATIONS

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

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

SUBCHAPTER N—EXPLOSIVES OR OTHER DANGEROUS ARTICLES OR SUBSTANCES AND COMBUSTIBLE LIQUIDS ON BOARD VESSELS

[CGFR 59-46]

PART 146—TRANSPORTATION OR STORAGE OF EXPLOSIVES OR OTHER DANGEROUS ARTICLES OR SUBSTANCES, AND COMBUSTIBLE LIQUIDS ON BOARD VESSELS

PART 147—USE OF DANGEROUS ARTICLES AS SHIPS' STORES AND SUPPLIES ON BOARD VESSELS

Miscellaneous Amendments

The provisions of R.S. 4472, as amended (46 U.S.C. 170), require that the land and water regulations governing the transportation of dangerous articles or substances shall be as nearly parallel as practicable. The provisions in 46 CFR 146.02-18 and 146.02-19 make the Dangerous Cargo Regulations applicable to all shipments of dangerous cargoes by vessels. The Interstate Commerce Commission in Orders Nos. 39 and 40 has made changes in the ICC regulations with respect to the definitions, descriptions, descriptive names, classifications, specifications of containers, packing, marking, labeling, and certification, which are now in effect for land transportation. Various amendments to the Dangerous Cargo Regulations in 46 CFR Part 146 have been included in this document in order that these regulations governing water transportation of certain dangerous cargoes will be as nearly parallel as practicable with the regulations of the Interstate Commerce Commission which govern the land transportation of the same commodities.

Since the amendments in this document are revised, requirements to agree with existing ICC Regulations or are editorial in nature, it is hereby found that compliance with the Administrative Procedure Act (respecting notice of proposed rule making, public rule making procedure thereon, and effective date requirements thereof) is unnecessary.

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Treasury Department Orders 120, dated July 31, 1950 (15 F.R. 6521), 167-14 dated November 26, 1954 (19 F.R. 8026), and CGFR 56-28, dated July 24, 1956 (21 F.R. 5459), to promulgate regulations in accordance with the statutes cited with the regulations below, the following amendments are prescribed and shall become effective on date of publication in the Federal Register:

(Federal Register of November 21, 1959)

TITLE 33—NAVIGATION AND NAVIGABLE WATERS

Chapter I—Coast Guard, Department of the Treasury

SUBCHAPTER A—GENERAL

[CGFR 59-58]

PART 5—COAST GUARD AUXILIARY

Miscellaneous Amendments

The purpose of the following amendments to the regulations regarding the Coast Guard Auxiliary are to bring certain regulations up to date and to revise statutory authority.

By virtue of the authority vested in me as Commandant, United States Coast Guard by Treasury Department Order No. 167-17, dated June 29, 1955 (20 F.R. 4976), and pursuant to the authority contained in 14 U.S.C. 633, 821, and 831, the following amendments to the regulations are prescribed to become effective on January 1, 1960:

(Federal Register of December 25, 1959)

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

SUBCHAPTER S—NUMBERING OF UNDOCUMENTED VESSELS, STATISTICS ON NUMBERING, AND "BOATING ACCIDENT REPORTS" AND ACCIDENT STATISTICS

[CGFR 59-64]

PART 171—STANDARDS FOR NUMBERING

Temporary Exemptions, Procedures for Making Application for Coast Guard Numbers, and Fees for Numbers

The purpose for this document is to publish procedures with respect to numbering of undocumented vessels under the Federal Boating Act of 1958; to provide for temporary exemptions from numbering requirements in order to allow States which have under active consideration or have nearly perfected their numbering systems additional time in which to obtain approval; and to reduce the fee for an original number from $5.00 to $3.00, which is based on the cost for administration of the Coast Guard numbering system.

The new regulation designated 46 CFR 171.01-6 is to provide a temporary exemption until July 1, 1960, for all undocumented vessels principally used within a particular State in which it is found that such State's system for numbering is under active consideration or nearly perfected for approval and may be approved by July 1, 1960. This temporary exemption may be permitted so that the assumption of functions with respect to numbering by a particular State may be accomplished in an equitable manner.

The new regulation designated 46 CFR 171.10-2 describes the procedures for making application for a Coast Guard number on and after April 1, 1960. Arrangements have been made with the Post Office so that applications (Forms CG-3876 and CG-3876A) will be available at all First Class and Second Class Post Offices throughout the United States aud at designated Third and Fourth Class Post Offices in those States in which the undocumented vessels must be numbered by the Coast Guard. No applications will be accepted before April 1, 1960.

The amendment to 46 CFR 171.10-25 revises the procedures for obtaining a duplicate certificate of number in event the original certificate of number is lost or destroyed. Arrangements have been made with the Post Office so that applications for duplicate certificates of number (Form CG-3919) will be available at all First and Second Class Post Offices throughout the United States and at designated Third and Fourth Class Post Offices in those States in which vessels must be numbered by the Coast Guard. No applications will be accepted before April 1, 1960. No application will be processed without a special fee stamp attached thereto and postmarked.

The new regulation designated 46 CFR 171.15-10(b) identifies the temporary certificate which will be issued through the Post Office and will require that it be postmarked in order to make it valid.

The amendments to 46 CFR 171.15-20 (c) and (d) provide for use of Form CG-3920 for change of address notice and Form CG-3921 for notification of change in status of vessel.

The amendment to 46 CFR 171.17–1 (a) (1) revises the estimated cost for original numbering from $5.00 to $3.00.

The amendment to 46 CFR 171.17–1 (b) provides the payment of fee for original numbering ($3.00) and the fee for reissue of lost or destroyed certificate of number ($1.00) shall be made by the purchase of an appropriate special fee stamp available at all First and Second Class Post Offices and at designated Third and Fourth Class Post Offices in those States in which the undocumented vessels must be numbered by the Coast Guard. The appropriate special fee stamp must be affixed to the application for certificate of number (Form CG–3876) and the temporary certificate of number (Form CG–3876A) or to the application for duplicate certificate of number (Form CG–3919) and the temporary duplicate certificate of number (Form CG–3919A) and postmarked by a Post Office. No special fee stamps will be issued before April 1, 1960.

By virtue of the authority transferred to me as Commandant, United States Coast Guard, by Treasury Department Order 167–32, dated September 23, 1958 (23 F.R. 7605), I hereby promulgate the following regulations in this document in accordance with section 7 of the Federal Boating Act of 1958, and these regulations shall be in effect on and after March 15, 1960:

(Federal Register of December 29, 1959)

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

SUBCHAPTER P—MANNING OF VESSELS

[CGFR 59–56]

PART 157—MANNING REQUIREMENTS

Subpart 157.30—Special Provisions

MANNING OF INSPECTED VESSELS OVER 65 FEET IN LENGTH AND LESS THAN 100 GROSS TONS

The purpose of this special manning provision is to authorize the holder of a license to operate mechanically propelled passenger-carrying vessels to serve as the master, pilot, or person in charge of any type of inspected steam or motor vessel of over 65 feet in length and less than 100 gross tons, to the same extent that such license authorizes the holder to operate small passenger-carrying vessels.

The Act of May 10, 1956 (Pub. Law 519, 84th Congress; 46 U.S.C. 390–390g) and the regulations in 46 CFR Parts 175 to 187, inclusive (Subchapter T—Small Passenger Vessels (Not More Than 65 Feet in Length)), established requirements for small vessels carrying more than six passengers. The operators of such vessels of less than 100 gross tons are required to hold "operators" or "ocean operators" licenses.

This policy to permit the holder of a license to operate mechanically-propelled passenger-carrying vessels to serve as the master, pilot, or person in charge of any type of inspected vessel of over 65 feet in length and less than 100 gross tons (without the need to hold another license) is based on various requirements in the vessel inspection laws governing the manning of vessels. One law, R.S. 4463, as amended (46 U.S.C. 222), provides in part that "no vessel of the United States subject to the provisions of Title 52 of the Revised Statutes or to the inspection laws of the United States shall be navigated unless she shall have in her service and on board such complement of licensed officers and crew * * * as may in the judgment of the Coast Guard be necessary for her safe navigation." Various vessel inspection regulations and administrative practice have allowed the Officer in Charge, Marine Inspection, discretion as to the numbers and grade of the officers and crew for particular vessels. This is based upon the type of vessel involved (passenger, tank, cargo, or miscellaneous vessel), its propulsion, the waters on which navigated, and other factors related to safe navigation. These minimum complements of officers and crew are stated in the certificates of inspection issued to inspected vessels.

It is hereby found that compliance with the Administrative Procedure Act (respecting notice of proposed rule making, public rule making procedures thereon, and effective date required thereof) is deemed unnecessary.

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Treasury Department Orders 120, dated July 31, 1950 (15 F.R. 6521), 167–9, dated August 3, 1954 (19 F.R. 5195), 167–14, dated November 26, 1954 (19 F.R. 8026), 167–20, dated June 18, 1956 (21 F.R. 4894), and CGFR 15–28 dated July 24, 1956 (21 F.R. 5659), to promulgate regulations in accordance with the statutes cited with the regulations below, the following regulations are prescribed and shall become effective on the date of publication of this document in the FEDERAL REGISTER:

Subpart 157.30 is amended by adding a new section at the end thereof reading as follows:

§ 157.30–35 Vessels of over 65 feet in length and less than 100 gross tons.

(a) A license as ocean operator or operator of mechanically propelled passenger-carrying vessels will authorize the holder to serve as master, pilot, or person in charge of any steam or motor vessel of over 65 feet in length and less than 100 gross tons, to the same extent that such license authorizes the holder to operate passenger-carrying vessels of not more than 65 feet in length and less than 100 gross tons.

(R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4426, as amended; 4438, as amended, 4463, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended; 46 U.S.C. 404, 224, 222, 367)

Dated: December 14, 1959.

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

[F.R. Doc. 59–10742; Filed, Dec. 17, 1959; 8:49 a.m.]

DEPARTMENT OF THE TREASURY

U.S. COAST GUARD

[CGFR 59–62]

TERMINATION OF MANUFACTURERS' APPROVALS FOR SUPERVISED FIRE PATROL SYSTEMS AND FIRE INDICATING AND ALARM SYSTEMS

1. The fire-protective systems to be installed on merchant vessels contracted for on or after November 19, 1959, or to be installed as new installations or major replacements on existing merchant vessels, are required by 46 CFR 113.10–5(a), 113.15–5(a) and 113.15–90(a) in the Electrical Engineering Regulations (CG–259) to meet the requirements in the specification designated 46 CFR Subpart 161.002 (Fire-Protective Systems) in Subchapter Q—Specifications of 46 CFR Chapter I. The specification for "Fire-Protective Systems" was published in the FEDERAL REGISTER dated November 21, 1956. The amendments to 46 CFR 113.10–5(a) and 113.15–5(a) were published in the FEDERAL REGISTER of June 26, 1958 (23 F.R. 4683). By individual letters dated December 4, 1958, all the manufacturers of "Fire Indicating and Alarm Systems" (161.002) and/or "Supervised Fire Patrol Systems" (161.003) listed in the Coast Guard pamphlet "Equipment Lists" (CG–190) dated April 1, 1958, were mailed copies of this "Fire-Protective Systems" specification and notified that the equipment covered by the Coast Guard

listed approvals did not meet the new specification requirements and the approvals therefore would have to be terminated on the date the amendments to 46 CFR 113.10–5(a) and 113.15–5(a) became effective.

2. By virtue of the authority vested in me as Commandant, United States Coast Guard, by Treasury Department Order Nos. 120, dated July 31, 1950 (15 F.R. 6521), 167–14, dated November 26, 1954 (19 F.R. 8026), 167–20, dated June 18, 1956 (21 F.R. 4894) CGFR 56–28, dated July 24, 1956 (21 F.R. 5659), and 167–38, dated October 26, 1959 (24 F.R. 8857), and R.S. 4405, as amended, 4462, as amended, 4488, as amended, 4491, as amended, sections 1, 2, 49 Stat. 1544, as amended, section 3, 54 Stat. 346, as amended, and section 3, 70 Stat. 152 (46 U.S.C. 375, 416, 481, 489, 367, 1333, 390b), and section 3, 68 Stat. 675 (50 U.S.C. 198), and implementing regulations in 46 CFR Chapter I:

It is ordered, That:

a. All the approvals for "Fire Indicating and Alarm Systems" (161.002) shall be terminated effective November 19, 1959, because these items of equipment no longer comply with current Coast Guard specification requirements.

b. All the approvals for "Supervised Fire Patrol Systems" (161.003) shall be terminated effective November 19, 1959, because these items of equipment no longer comply with current Coast Guard specification requirements.

c. All items of equipment covered by the approvals described in paragraphs a. and b. above, which are purchased for installation on merchant vessels contracted for on or before November 19, 1959, or which are purchased as new installations or major replacements on existing vessels on or before November 19, 1959, may be installed and/or continued in use so long as such equipment is in good and serviceable condition.

d. Whenever minor repairs or minor alterations to items of equipment covered by the approvals described in paragraphs a. and b. above become necessary, such repairs or alterations may be performed, but will be subject to the requirements in 46 CFR 113.15–90(a) of the Electrical Engineering Regulations (CG–259).

Dated: December 23, 1960.

[SEAL] J. A. HIRSHFIELD,
Rear Admiral, U.S. Coast Guard,
Acting Commandant.

[F.R. Doc. 59–11055; Filed, Dec. 28, 1959; 8:49 a.m.]

List of Countries which are Parties to the International Convention for the Safety of Life at Sea, 1948, and of Territories to which the Convention has been applied in Accordance with Article XIII

	Effective date
Argentina	31 Oct 56
Australia	6 Jan 60
Belgium	19 Nov 52
Brazil	17 Apr 56
Bulgaria	17 Nov 56
Cambodia	2 Jun 54
Canada	19 Nov 52
Chile	5 Sep 53
Cuba	26 Nov 54
Czechoslovakia	25 Jun 57
Denmark	19 Nov 52
Dominican Republic	29 Jun 55
Finland	13 Nov 53
France	19 Nov 52
Overseas France	31 May 55
Federal Republic of Germany	10 Nov 54
Ghana	22 Feb 58
Greece	21 Apr 54
Haiti	26 Aug 54
Hungary	15 Nov 56
Iceland	19 Nov 52
India	19 Nov 52
Irish Republic	19 Nov 53
Israel	19 Nov 52
Italy	19 Nov 52
Somalia	6 Jul 53
Japan	19 Nov 52
Kuwait	12 Apr 59
Liberia	13 Apr 53
Federation of Malaya	21 Oct 53
Monaco	12 Apr 55
Morocco	22 Apr 55
Netherlands	19 Nov 52
Netherlands Antilles	11 Jan 55
New Zealand	19 Nov 52
Nicaragua	19 May 54
Norway	19 Nov 52
Pakistan	19 Nov 52
Panama	8 Apr 54
Philippines	19 Nov 52
Poland	11 Sept 54
Portugal	19 Nov 52
Portuguese Overseas Provinces of Cape Verde, Guinea, S. Tome and Principe, Angola, Mozambique, State of India, Macao and Timor	23 Feb 57
Roumania	30 Dec 54
Spain	26 Mar 53
Spanish Colonies	26 Mar 53
Sweden	19 Nov 52
Switzerland	19 Aug 54
Turkey	19 Jan 57
United Arab Republic (Egypt)	11 Sep 54
Union of South Africa	19 Nov 52
Union of Soviet Socialist Republics	10 Aug 54
United Kingdom	19 Nov 52
Hong Kong	7 Apr 53
Singapore	5 Aug 53
United States of America	19 Nov 52
Puerto Rico	19 Nov 52
Venezuela	8 May 56
Vietnam	12 Dec 53
Yugoslavia	19 Nov 52

EQUIPMENT APPROVED BY THE COMMANDANT

[EDITOR'S NOTE.—Due to space limitations, it is not possible to publish the documents regarding approvals and terminations of approvals of equipment published in the Federal Register dated December 17, 1959 (CGFR 59–48). Copies of these documents may be obtained from the Superintendent of Documents, Washington 25, D.C.]

ARTICLES OF SHIPS' STORES AND SUPPLIES

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

CERTIFIED

Chemical Compounding Corp., 262 Huron St., Brooklyn 22, N.Y., Certificate No. 408, dated 1 December 1959, QUIST No. 1400—5 SPECIAL.

AFFIDAVITS

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

Hica, Inc., P.O. Box 6065, Shreveport, La., CASTINGS.

Bradshaw Steel & Forge Co., Wainwright Shipyard, P.O. Box 4618, Panama City, Fla., PIPE FITTINGS.

Mid-Continent Steel Co., P.O. Box 6398, Shreveport, La., CASTINGS.

Western Gear Corp., 417 Ninth Ave., South, Seattle 4, Wash., VALVE, FLANGES AND FITTINGS.

Dee Brass Foundry, Inc., 2408 Everett St., Houston 9, Tex., CASTINGS.

Portland Forge & Foundry Co., Portland, Ind., FORGINGS.

Texas Foundries, Inc., P.O. 180, Lufkin, Tex., CASTINGS.

General Kinetics Corp., 197 South Van Brunt St., Englewood, N.J., VALVES.

FUSIBLE PLUGS

The regulations prescribed in Subpart 162.014, Subchapter Q Specifications, require that manufacturers submit samples from each heat of fusible plugs for test prior to plugs manufactured from the heat being used on vessels subject to inspection by the Coast Guard. A list of approved heats which have been tested and found acceptable during the period from 15 November 1959 to 15 December 1959 is as follows:

The Lunkenheimer Co., Cincinnati 14, Ohio. Heat Nos. 607, 608, 609, 610, and 611.

MARINE SAFETY PUBLICATIONS AND PAMPHLETS

The following publications and pamphlets are available and may be obtained upon request from the nearest Marine Inspection Office of the United States Coast Guard. Date of each publication is indicated following title.

CG No.	*Title of Publication*
101	Specimen Examinations for Merchant Marine Deck Officers. 7–1–58
108	Rules and Regulations for Military Explosives and Hazardous Munitions. 8–1–58
115	Marine Engineering Regulations and Material Specifications. 3–1–58
123	Rules and Regulations for Tank Vessels. 4–1–58
129	Proceedings of the Merchant Marine Council. Monthly
169	Rules of the Road—International—Inland. 5–1–59
172	Rules of the Road—Great Lakes. 5–1–59
174	A Manual for the Safe Handling of Inflammable and Combustible Liquids. 7–2–51
175	Manual for Lifeboatmen and Able Seamen, Qualified Members of Engine Department, and Tankerman. 6–1–55
176	Load Line Regulations. 9–2–58
182	Specimen Examinations for Merchant Marine Engineer Licenses. 5–1–57
184	Rules of the Road—Western Rivers. 5–1–59
190	Equipment Lists. 4–1–58
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel. 5–1–59
200	Marine Investigation Regulations and Suspension and Revocation Proceedings. 7–1–58
220	Specimen Examination Questions for Licenses as Master, Mate, and Pilot of Central Western Rivers Vessels. 4–1–57
227	Laws Governing Marine Inspection. 7–3–50
239	Security of Vessels and Waterfront Facilities. 7–1–58
249	Merchant Marine Council Public Hearing Agenda. Annually
256	Rules and Regulations for Passenger Vessels. 3–2–59
257	Rules and Regulations for Cargo and Miscellaneous Vessels. 3–2–59
258	Rules and Regulations for Uninspected Vessels. 9–1–59
259	Electrical Engineering Regulations. 9–2–58
266	Rules and Regulation for Bulk Grain Cargo. 5–1–59
267	Rules and Regulations for the Numbering of Undocumented Vessels and the Reporting of Boating Accidents. 5–1–59
268	Rules and Regulations for Manning of Vessels. 9–3–57
269	Rules and Regulations for Nautical Schools. 11–1–53
270	Rules and Regulations for Marine Engineering Installations Contracted for Prior to July 1, 1935. 11–19–52
290	Pleasure Craft. 7–1–59
293	Miscellaneous Electrical Equipment List. 3–10–59
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf. 1–2–57
323	Rules and Regulations for Small Passenger Vessels. (Not More Than 65 Feet in Length) 6–1–58
329	Fire Fighting Manual for Tank Vessels. 4–1–58

Official changes in rules and regulations are published in the Federal Register, which is printed daily except Sunday, Monday and days following holidays. The Federal Register is a sales publication and may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. It is furnished by mail to subscribers for $1.50 per month or $15 per year, payable in advance. Individual copies desired may be purchased as long as they are available. The charge for individual copies of the Federal Register varies in proportion to the size of the issue and will be 15 cents unless otherwise noted on the table of changes below.

Changes Published During December 1959

The following have been modified by Federal Register:

CG–267 Federal Register, December 5, 1959, and December 29, 1959.
CG–190 Federal Register, December 17, 1959; December 29, 1959.
CG–268 Federal Register, December 18, 1959.

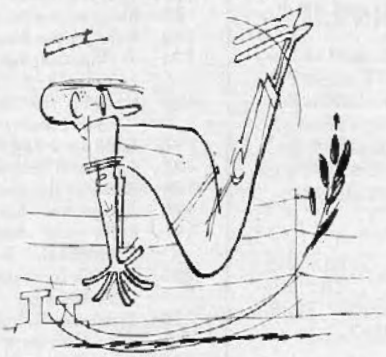
U.S. GOVERNMENT PRINTING OFFICE: 1960

THE MARINER'S GUIDE TO SPACE TRAVEL

THE UNGUIDED MISSILE

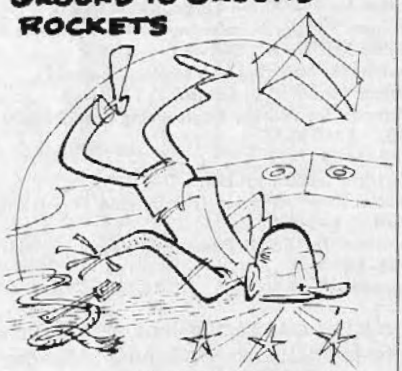
TAKE-OFF FROM
FAULTY LADDERS OR
MISSING GUARDRAILS

SPLATTNIK



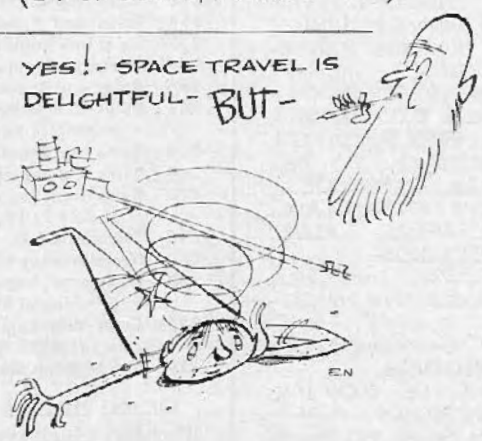
LAUNCHED BY LIQUID FUEL-
(OIL ON DECKS, F'RINSTANCE.)

GROUND TO GROUND ROCKETS



BLAST OFF FROM
TOOLS, ETC., LEFT ON DECK.

YES! - SPACE TRAVEL IS
DELIGHTFUL - BUT -



— IT'S STILL
THE LANDING THAT HURTS!

BE CAREFUL!