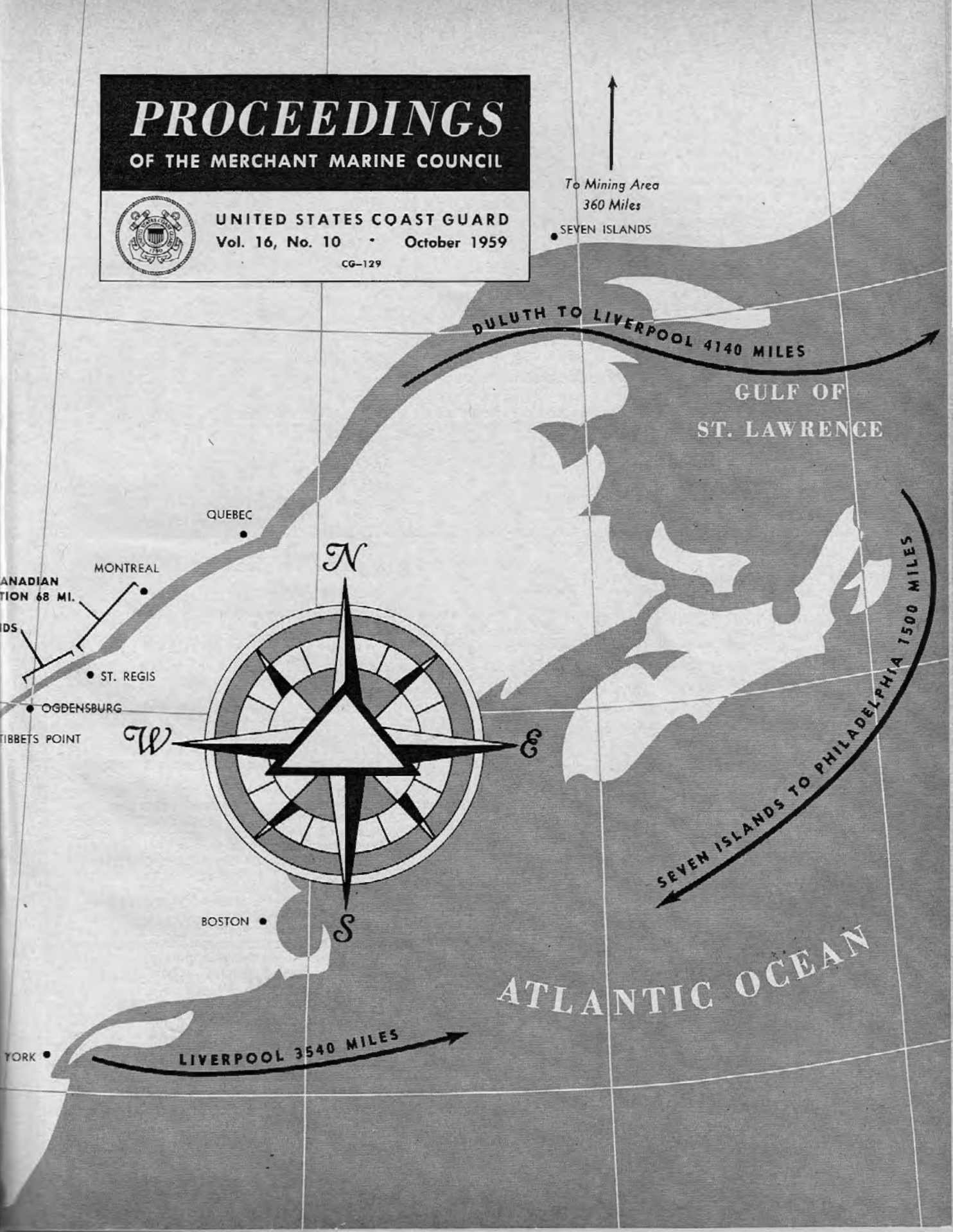

PROCEEDINGS
OF THE MERCHANT MARINE COUNCIL
UNITED STATES COAST GUARD
Vol. 16, No. 10 · October 1959
CG-129
To Mining Area
360 Miles
SEVEN ISLANDS
DULUTH TO LIVERPOOL 4140 MILES
GULF OF
ST. LAWRENCE
QUEBEC
MONTREAL
ANADIAN
TION 68 MI.
IDS
ST. REGIS
OGDENSBURG
TIBBETS POINT
N
W
E
S
SEVEN ISLANDS TO PHILADELPHIA 1500 MILES
BOSTON
ATLANTIC OCEAN
YORK
LIVERPOOL 3540 MILES

PROCEEDINGS
OF THE
MERCHANT MARINE COUNCIL

Published monthly at Coast Guard Headquarters, Washington 25, D.C., under the auspices of the Merchant Marine Council, in the interest of safety at sea. Special permission for republication, either in whole or in part, with the exception of copyrighted articles or pictures, is not required provided credit is given to the Proceedings of the Merchant Marine Council. Use of funds for printing this publication has been approved by the Bureau of the Budget October 3, 1957.

CONTENTS

DISTRIBUTION (SDL 69)

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

PROCLAMATION 3304

FIRE PREVENTION WEEK, 1959

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

WHEREAS experience has shown that effective community fire-prevention programs can save thousands of lives each year and millions of dollars in property values; and

WHEREAS increased fire losses during the past year emphasize the need for increased care, responsibility, and community action on the part of all of the American people:

NOW, THEREFORE, I, DWIGHT D. EISENHOWER, President of the United States of America, do hereby designate the week beginning October 4, 1959, as Fire Prevention Week.

I call upon our people to promote programs for the prevention of fires; and I urge State and local governments, the American National Red Cross, the Chamber of Commerce of the United States, and business, labor and farm organizations, as well as schools, civic groups, and public-information agencies, to share actively in observing Fire Prevention Week. I also direct the appropriate agencies of the Federal Government to assist in this national effort to reduce the loss of life and property resulting from fires.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Seal of the United States of America to be affixed.

DONE at the City of Washington this 21st day of July in the year of our Lord nineteen hundred and fifty-nine, and of the Independence of the United States of America the one hundred and eighty-fourth.

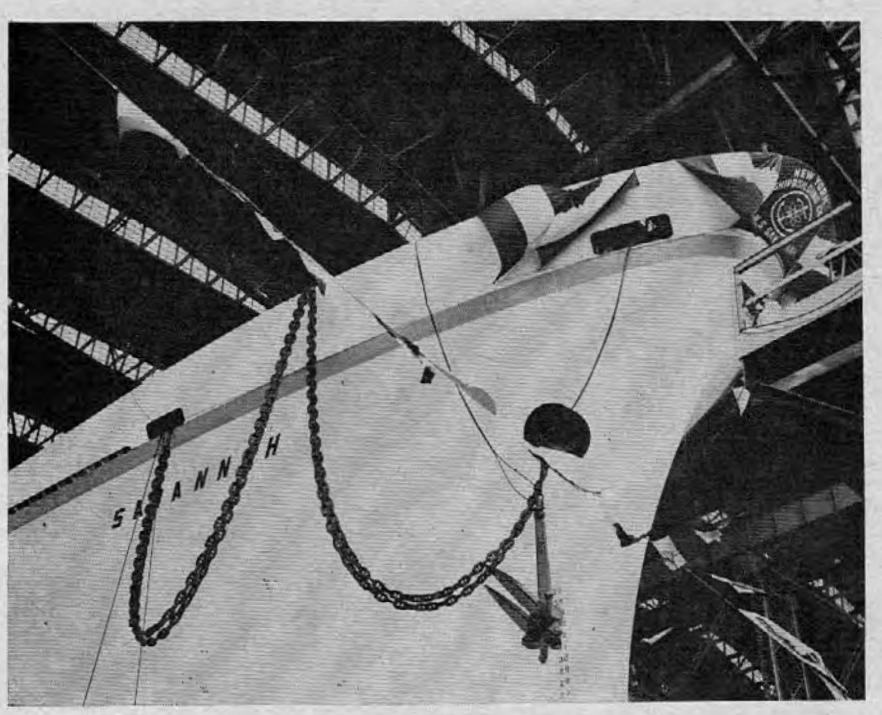
[SEAL] DWIGHT D. EISENHOWER.

By the President:

DOUGLAS DILLON,
Acting Secretary of State.

[F.R. Doc. 59-6132; Filed, July 22, 1959; 1:30 p.m.]

N.S. SAVANNAH LAUNCHED



"As we step into the atomic future, the welfare of the American Merchant Marine becomes more closely tied to the welfare of all free seafaring nations. Our venture into the field of atomic shipping is a new chapter in the bold and statesmanlike strides we have taken to free the trade of the world from the threat of stagnation, for beside its great scientific achievement this ship is another example of the determination of the people of the United States to contribute to a high level of mutually advantageous commerce among the free nations of the world."

—Secretary of Commerce FREDERICK H. MUELLER
at the launching of the N.S. *Savannah* 22 July 1959

SECOND SAVANNAH CREW

A second group of engineers and deck officers are being trained in operation of the nuclear merchant ship NS *Savannah*, which is being built for the Maritime Administration, U.S. Department of Commerce, and the Atomic Energy Commission.

The academic portion of the training program for the world's first nuclear merchant ship is being provided by the Babcock & Wilcox Co., builder of the ship's reactor, under contract to the MA. The program is being conducted at the company's plant in Lynchburg, Va., and at Lynchburg College. Field training is provided at AEC facilities and at the yard of the builder, New York Shipbuilding Corp.

The first group of licensed engineers, which started training in September 1958, has completed the first part of its 15-month course and is now in the field. From this group is expected to come the first engineering crew of NS *Savannah*. All expenses of this group, except tuition, which was paid by the MA, were borne by States Marine Lines on a non-reimbursable basis. Tuition and other expenses for 20 other students selected by the Coast Guard, maritime academies, and shipping industry firms were met by their Government and industry sponsors.

The second group to be trained will consist of 11 engineering college graduates with the requisite licenses and sea experience, who were chosen from the U.S. Merchant Marine by the States Marine Lines. In addition 7 foreign nationals sponsored by the Division of International Affairs, Atomic Energy Commission, and an American engineer sponsored by a shipbuilding company will be trained in the second group with the costs borne by their sponsors.

DESIGN FEATURES OF OCEAN VESSELS FOR GREAT LAKES OPERATION

By Fred A. Heess

SS *SANTA CRISTINA* passing through Eisenhower Lock at Massena, New York on her inaugural trip through the St. Lawrence Seaway. The first U.S. vessel through the seaway was a sister ship, the SS *Santa Regina*. *Photo courtesy Grace Lines.*

THE OPENING of the St. Lawrence Seaway with its 27-foot controlling depth has presented the ocean operator a challenge entirely different from those previously encountered. Where the owner is free to sail the seven seas, "The Eighth Sea" cannot be entered without some extensive preparation.

It can readily be seen that a method of ship operation developed on the Great Lakes by Great Lake operators for special Great Lakes commodities and operating conditions, could only have developed differently although concurrently with ocean-going techniques.

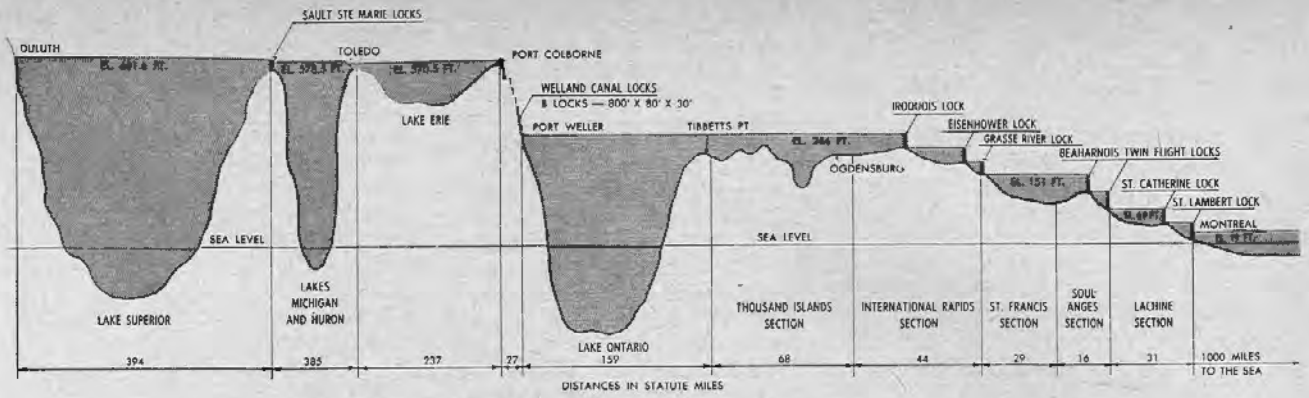
An operator could very easily spend as much as $250,000 to outfit an existing C2 or C3 cargo vessel for Great Lakes service were he to follow all the rules and recommendations given in existing publications.[1] The purpose of this paper, therefore, is to review these rules and recommendations and offer possible suggestions for the guidance of the operator and designer alike.

DESCRIPTION OF OPERATION

To better understand the features required for Great Lakes service a short description of the "canaling" operation is given. Passing through the various locks of the Great Lakes St. Lawrence system is quite different from locking through the Panama Canal for example. Where the Panama Canal system utilizes mules on both sides of a vessel to gently maneuver a vessel through the locks without damage and with little responsibility on the part of the shipmaster; the Lakes' system requires each vessel to assume tremendous responsibility.

Upon approaching a lock or a series of locks, a vessel must first tie up alongside a seawall. This may necessitate waiting to pass through. Tugboats are unheard of for this operation so it is necessary to approach the seawall with sufficient headway to maintain rudder control and while

[1] "Federal Register," 4/18/59; page 2983, Title 33: "Navigation in Navigable Waters," Chapter IV, St. Lawrence Seaway Development Corp., Part 401—Seaway Operations and Operating Rules. See also "Engineering Study of the Effect on the Opening of the St. Lawrence Seaway on the Shipping Industry," by H. C. Downer and Associates, Inc., Cleveland, Ohio, 2/25/57.



ST. LAWRENCE SEAWAY and Great Lakes Profile—courtesy *American Shipbuilding Company*.

still underway to put seamen ashore. This is done by means of a long horizontal landing boom immediately abaft the forecastle head. The seamen handle lines and the vessels ahead motion is checked by means of heavy wire cables between bitts on the shore and winches on board. This is a somewhat spectacular operation.[2]

The vessel is then hauled alongside the concrete wall and into the locks with her own equipment, with her own crew, and when directed by the lock master. This same general type of operation is required for docking and undocking at loading berths. While this is routine for Great Lakes shipmasters, it is a radical departure from convention for deep-sea personnel. The following articles will list and discuss in some detail the many recommended and required features peculiar to the Great Lakes service.

MR. HEESS is a graduate of *Webb Institute of Naval Architecture* who joined *Moore-McCormack Lines* June 17, 1946, as assistant manager of the refrigeration department. During World War II he served aboard the USS *Boise* after graduating from Midshipmen's School at *Cornell University*. He is licensed as professional engineer in New York State and is a member of the *Society of Naval Architects and Marine Engineers* and *American Society of Refrigerating Engineers*. He is also a member of Technical Committee of the Committee of *American Steamship Lines*.

Mr. Heess was made manager of *Mooremack's* New Construction Department July 21, 1954, and set up headquarters at Pascagoula, Miss., on August 27, 1956, to complete the two new luxury liners *Brasil* and *Argentina*. Subsequently he transferred his operations to Chester, Pa., on May 12, 1958, supervising the construction of the new *Mooremack* freighters.

A deep draft route to 95,000 miles of fresh water in the heart of the North American continent is now a reality. The St. Lawrence Seaway in effect has created an "Eighth Sea".

As is any project of great magnitude, the building and operation of the Seaway has not been without its difficulties. Many of the problems of the operators of ocean-going vessels will be solved in time as their personnel gain experience in the use of this extraordinary water highway.

Mr. Fred A. Heess, Manager of the New Construction Department, Moore-McCormack Lines, discussed some of the operating problems for ocean-going vessels at the May 29, 1959, meeting of the *Great Lakes Section of the Society of Naval Architects and Marine Engineers* in a paper which is reprinted here by permission of the Society.

DIMENSIONAL LIMITATIONS

Regulations limit length to 715 feet and beam to 72 feet but by special authority,[2] length could be increased to 730 feet and beam to 75 feet. As a practical matter it is not felt the ocean operator would ever approach the maximum length permitted due to the Load Line Rules not permitting a length over depth ratio for ocean vessels above 13.5. Mast heights must be not more than 117 feet above the water line but should they exceed 110 feet precise information as to height must be given.

[2] "Modern Practice in Mooring of Ships," by William Munch, Jr., presented before Philadelphia Section of The Society of Naval Architects and Marine Engineers, 10/21/55.

Although the mast heights are basically 117 feet, the Toledo Marine Terminal is limited to 105 feet and certain berths in Cleveland are limited to 96 feet. The average ocean-going vessel of the C3 size has mast heights in excess of the basic 117 feet but by removal of topmasts and possible lowering of heavy lift booms it is felt the 117 feet would present no problem, 105 feet would be very difficult to meet.

It is understood trim by the head will not be permitted while passing through the seaway, nor may it exceed one foot by the stern. While the larger ocean vessels have design drafts of 28 feet and upwards, the recommended seaway draft is 25 feet 0 inches and as a practical matter may be limited to 20 feet if calls are made at ports such as Buffalo, Chicago, Duluth, etc. Bridge clearances as well as depths of water must be checked and verified for any ports of call contemplated.

"Engineering study of the effects of the opening of the St. Lawrence Seaway on the shipping industry" recommends the installation of draft meters.[1] Our experience would indicate a draft meter as a piece of equipment costing in the neighborhood of $5,000 whose accuracy is not always the best. Some of the foreign ships are equipped with long lengths of tubing in the form of a "U" with a gage glass on each side of the wheelhouse, which give a very accurate indication of list. The device is much more accurate than the ordinary inclinometer and the same arrangement in a fore and aft direction would inexpensively but accurately determine trim, thereby giving a very good check on visual draft readings, fore and aft.

MOORING LINES AND WINCHES

We understand the equipment deficient in many ocean-going vessels and

which is contributing most to delays in passing through the canal systems are the winches, chocks, and lines. The rules require four good and sufficient lines and hawsers, two of which shall be leading aft and two leading ahead. These shall be so arranged that four can be used on either side of the vessel. The lines shall run from power driven winches and not from capstans or warping heads. Each line shall be provided with a hand hold loop spliced into the eye that is thrown over the snubbing post. Each line shall be attended by one of the crew.

In conjunction with the foregoing and after this season of operation special Port Colburne type of universal chocks will also be required for each line. These chocks are installed vertically in the vessels bulwark and normal to the run of the line from the winch. The Great Lakes vessels normally have mooring winches with drum axis parallel to the center line in order that the line may be run over the top of the drum to the fairlead on one side or from the bottom of the drum to the fairlead on the other side as conditions may require. The constant tension mooring winches designed specifically for the Great Lakes services have light line speeds of 400 feet per minute, load speeds of 20 feet per minute with pulls as high as 20,000 pounds with adjustable tensioning. The light line speed is needed as the vessels often approach the docks at speeds up to three knots and for obvious reasons the line speed must be greater than the ship speed or many cables will be parted. The high line speed is also required for successive snubbing operations.[3]

To outfit a large ocean-going freighter with these especially designed mooring winches, lines, and chocks would cost in the neighborhood of $120,000 per vessel. On the other hand, the average American flag cargo ship may already have on board some 16 or 20 fifty-horsepower cargo winches. In our particular case, the latest cargo winches are electrohydraulic and develop a 7,400 pound pull at 220 feet per minute and have a light line speed of 400 feet per minute with a drum size sufficient for 450 feet of three-quarter-inch-diameter cable. The heavy lift drums where fitted on these same winches will develop 20,000 pound pull at 80 feet per minute which drums are sufficiently large for 1,350 feet of cable. It would therefore seem that existing equipment could be adapted with a minimum of expense, and if consideration was given during a basic design of an ocean-going vessel for Great Lakes service, suitable double duty winches could be designed and installed that would be equally as effective as those in use today on the Great Lakes vessels. We do not believe we are unduly optimistic in expecting developments in the near future along the lines discussed above. In connection with the power-driven winches for the mooring lines, special chocks of the Port Colburne or Oldman type are used to permit line leads up or down pending upon the position of the vessel in the locks. Sheaves must be as large as possible to prevent rapid deterioration of the flexible mooring lines (often as large as 1⅛ inch in diameter). It is also important that the opening in these chocks be sufficiently large to pass the eyes of the mooring lines quickly and easily.

Should ocean vessels be designed specifically for seaway trade with tensioning winches specifically for that purpose and no other, it may well be that operating experience with flexible wire mooring lines will in the overall show lower costs per year and safer operation than with manila. Reports to this effect have been circulated.

SEWAGE DISPOSALS AND TREATMENT SYSTEMS

The rules recommend the installation of septic tanks where vessels are not already equipped with containers. It is not entirely clear what is meant by septic tanks nor is it clear what rules and regulations might be set up by the U.S. Public Health Service

THE BEAUTY of the Great Lakes shoreline is as much a part of the trade as the beauty of the water. Oceangoing sailors may now enjoy this night view of Cleveland, one of the major receiving ports. This photo appears in the American Ship Building Company's booklet *Broadening Horizons* through the courtesy of the Interlake Steamship Company.

[3] See "Deck Winches, Anchor Windlasses and Their Associated Equipment," by Almon A. Johnson, presented before the Great Lakes Section of SNAME, 1/26/51.

regulating the discharge into the Lakes proper. Most municipalities have rules restricting the discharge of raw sewage. Not knowing what the ultimate regulations will be, it is difficult to determine what type of sewage disposal and treatment system should be installed. There are at least three different types of systems whose installed costs range anywhere from $20,000 to $50,000 and whose operation falls into the following three basic systems:

TYPE "A"—Raw sewage is discharged into a settling tank where solids are stored and liquids overflow into collecting tank and then to treatment tank where chlorination of liquids only takes place. Solids are stored until such time as vessel is in unrestricted waters. The problem with this system is that waters unrestricted today may be restricted tomorrow so that required storage capacity is hard to judge.

TYPE "B"—This system is similar to the Type "A" system except liquids and solids are agitated and chopped after which both the liquids and solids are chlorinated, stored and pumped overboard. This system is not 100 per cent effective, but it does solve the problem of disposing the solids under existing rules.

TYPE "C"—This system is perhaps the most complicated, as the raw sewage passes through a chopper, thence to an aeration tank where 24 hours of aeration is required—during which time microorganisms destroy the solid material. Chlorination of the effluent then takes place and it is pumped overboard. This system may present some problems for the deepsea operator as operation in salt water may retard the action of the bacteria. In any event, once the system is shut down some 12 days of fresh water operation is required to build up the bacteria. It does not appear, however, that under any circumstances would this system be any less efficient than system "B" above.

We are equipping our new vessels with sewage disposal systems during construction to keep costs to a minimum. Groupings of piping, routing, and space requirements make this a difficult installation later. Many ports with access to the sea may ultimately require sewage treatment.

LANDING BOOMS

Rules recommend the installation of landing booms, also known as man overboard booms. The purpose of these booms is to place line handlers ashore when a vessel is approaching a lock or dock. The boom itself is a horizontal spar located forward, which spar and post rotates by means of a lever 90 degrees from a position alongside the shell. In operation the seaman sits on a special type of bosun's chair having a single line running into the center of the seat. After straddling the line at the bulwark, the boom is rotated and by means of a hand-operated winch the seaman is lowered to the dockside where he is in a position to handle the mooring line.

This is an altogether new type of operation for the ocean operator. One of the unions has already labeled this boom a "killer boom" so certain problems exist in connection with its use as well as problems in the handling of lines by ocean-going seamen.[4] It is to be hoped that familiarity with the operation will resolve any problems that may exist in this connection.

FENDERS AND RUBBING STRIPS

It must be appreciated that vessels transiting the locks and canals scrape themselves against the concrete sides of the locks. Tumblehome is desirable. It is absolutely necessary that none of the superstructure protrude beyond the shipside. We understand a new Danish vessel with an overhanging bridge had to have approximately two feet of each bridge wing burned off prior to transiting the Welland Canal. In this same connection, adequate guarding must be provided for any protrusion from the vessel's side. For example, hinges on the usual midship sideport doors would require guarding or hinging inward. The SS *George M. Humphrey*[5] has two rubbing strips chamfered top and bottom on each side consisting of flat bar nine inches wide and 1½ inches thick. The fore and aft extent as well as the thickness would have to be determined in each particular case for the vessel being protected. Inner and outer plating, type of rivet heads, shape of hull, all have to be considered. Where a vessel does not have tumblehome it is often possible to list the vessel to limit the wear.

Where hazardous cargo is being carried, fenders are required to prevent any metallic portion of the vessel from touching the side of the dock or lock walls. These fenders shall either be made of materials that will float or shall be fastened by a steel cable or two manila lines. Automobile or truck tires may not be used. The problem with any type of fender is the fact the vessel experiences an up and down scraping motion as well as one forward and aft.

H. C. Downer & Associates, Inc., recommends reinforcing the hulls in way of docking impacts at the ends of the parallel middlebody and also at the stem. Additional rubbing bars should also be provided in way of the shoulders.[1]

WRONGWAY ALARM SYSTEM

The Seaway rules[1] strongly recommend the installation of a wrongway propeller direction and alarm system. Installation of such an alarm system does not appear difficult. It is not clear to the writer what is gained by having such a system if the wheelhouse is equipped with a shaft revolution indicator. Errors in telegraphing would be picked up immediately due to repeat-back features in the telegraphs. Errors in throttling would immediately be noted on the bridge shaft revolution indicator and a signal to stop telegraphed and the correct order retelegraphed. Alarms might only add to the possible confusion as it would disrupt established procedures.

STERN ANCHORS

Seaway rules strongly recommend installation of stern anchors and further state they cannot be dropped in any canal except in an emergency. Certain areas are approved anchorages and it is presumed conditions are such that accurate positioning of the vessel is required.

Installation of stern anchor, anchor chain cables, anchor pocket, chain locker, and stern anchor windlass will be a very expensive item for the ocean operator. Cost estimates are in the neighborhood of $30,000 for such an installation. While it is not uncommon for ocean-going freighters

---

[4] Two casualties have been reported by U.S. vessels in the Welland Canal in the use of mooring lines. A nylon spring line under heavy strain jumped off a bollard and inflicted severe lacerations about the head and face of a deck officer. Material damage was suffered by another vessel when her wire spring came off a bollard and the vessel hit the dock. The construction of the bitt in use offers little resistance to vertical movement of the mooring lines. There may be some merit to the observation that the Welland Canal Lock bitts are more adaptable to the wire rope cables and other equipment and methods customarily used aboard vessels of the Great Lakes fleet. Ed.

[5] "The Great Lakes Ore Carrier, SS *George M. Humphrey*," by Messrs. K. C. Thornton, W. R. Douglas, Paul Miedlich and R. O. Butcher; presented before Great Lakes Section of SNAME, 9/30/55. Reprinted in 1956 transactions.

to have stern anchors, they are used but rarely and then attached to a large diameter wire cable and handled with the cargo gear and capstans. If stern anchors are to be used at all, it is recommended suitable anchor windlass be provided, but a careful review should be made of this particular operation to make certain they are really needed.

RADIO

It is required that every vessel transiting the canals and locks shall be on listen-in watch. Seaway authorities have established medium frequency channels of 2,182 kilocycles and 2,003 kilocycles. In addition, they recommend radiotelephone equipment for the very high frequency channels of 156.6, 156.7, and 156.8 megacycles. The average ocean-going freighter has navigational radiotelephone equipment which can be set up for medium frequency sending and receiving. In that the use of the very high frequency equipment would be limited, it is felt this equipment could be rented or one portable unit used to service a number of ships in a fleet.

STEERING GEAR

It is common on ocean-going vessels for the rudder to turn from hard over to hard over in 30 seconds from 35 degrees starboard to 35 degrees port. This is 2⅓ degrees per second. On the Great Lakes it is common to turn at 4½ degrees per second and permit a maximum rudder angle of 45 degrees. The greater rate is required for quicker maneuvering in the restricted waters and the greater angle is advantageous for operations such as winding the vessel. On the other hand, some of the C4 conversions are operating on the Great Lakes with the original ocean-going steering units in the steering engine room, it is not a difficult job to double rate the steering gear. This would permit hard over from hard over in 15 seconds, and also gives a distinct safety feature when in confined waters, in that both power units would be running and if for some reason one would fail the ship's steering would still be under control of the power unit remaining on the line. Suitable cross-over connections would have to be provided and, in addition, safety features to prevent motorizing of one unit should the other fail. The simplest method for accomplishing this would be by means of a nonreversing coupling between the motor and the pump in order to prevent rotation of the pump and motor in the wrong direction.

Another possible method of accomplishing this, although more expensive, would be to have an electric brake on the motor which would set when the motor stopped. Conversion to double rate steering is difficult to estimate but may amount to about $300 in an existing installation and might never appear in a new job.

WHISTLE

We understand it is common practice to have visible whistle signals for use at night in congested waterways. It would seem also advisable in the case of an air whistle which does not have a plume to have a visible signal for daytime operation. Such devices are available commercially and the installed cost is about $450. Vessels fitted with steam whistles, of course, can connect the whistle pull to suitable lighting for use at night.

PUBLIC ADDRESS SYSTEM

For the issuing of commands by the bridge to various seamen handling lines, as well as the winch operators, a public address system of some sort is recommended. Our new freighters are being equipped with docking loudspeaker systems which have a 10-inch marine loudspeaker talk-back type located in the wheelhouse and 15-inch highpower loudspeaker talk-back type located at the bow and the stern. In addition, a microphone handset consisting of a transmitter and receiver can be plugged into receptacles on the port or starboard side of bridge wings. In the case of older vessels it would be necessary to purchase portable battery-operated loudspeakers which are available at a cost of approximately $150.

DRAFT MARKS

Vessels drawing more than 5 feet of water are required to have draft marks forward and aft, and the master must be able to prove the draft marks correct. It would seem a load line certificate plus a suitable plan and a check of the freeboard at the plimsoll mark would adequately prove load line markings are correct. If the numbers for the draft readings are outlined in welding bead it would seem an operator would not be looked upon with suspicion.

OILY WATER SEPARATORS

Various sources have recommended possible installation of oily water separators for vessels engaged in Great Lakes operation. Our experience with oily water separators has been totally unsuccessful and it has been explained that the present day grades of bunker C fuel oil cannot be successfully and efficiently separated. For this reason it is recommended a clean ballast operation be contemplated and piping arrangements be such that possible oily bilge water from the engine room can be stored until such time as the vessel returns to unrestricted waters.

DISCHARGE PIPES

No pipes may discharge over the lock copings. It is understood the reason for this is the possibility of freezing in the Winter and possible injury of the line handling people. Part of this particular problem is solved by using a sewage disposal and treatment system as previously described, as the overboard discharge is below the water line. If the other overboard discharges are not below water line it may be necessary to construct some sort of very heavily reinforced portable deflectors, which would be most undesirable due to the rubbing motion of the vessel through the locks. Considerable damage could result unless the guards were adequate and the internal stiffenings sufficient.

It is not presumed that scuppers come under the category of discharge pipes, as washing down decks would be under the control of the vessel.

BOW TOWLINE BRIDLE

Engineering Studies [1] indicates that Great Lakes vessels are provided with bow towline bridles. This consists of two heavy wire pendants leading through port and starboard bow chocks with ends made fast to the forecastle bitts. The two pendants are married together at the stem above the waterline and are used by harbor tugboats who handle vessels British style by towing at the bow rather than alongside.

RADAR

Ocean-going vessels are normally equipped with 10-centimeter radar. For close-up work as encountered in the Seaway and Lakes, the 3-cm. type may be preferable. An alternative suggested by one 10-cm. radar manufacturer was to increase antenna size to permit greater short range sensitivity. Developments in radar are continuous so that problems in this regard are not insurmountable.

SUMMARY

In summary it might be restated that the problems of the ocean operator first entering the Lakes are many and varied. Solutions to all the problems are not yet known and may not be known for some time. Experience will be the greatest teacher. Developments are in progress and the needs of the operators will eventually be met.

MARITIME SIDELIGHTS

The sixth edition of nautical chart No. 4000, Hawaiian Archipelago, has recently been published by the U.S. Coast and Geodetic Survey.

The chart covers a large area of the Pacific Ocean in the general vicinity of the Hawaiian Islands including the main island group and the chain of reefs, small rocky islands, and the atolls that terminate with Kure Island, 1,000 miles west northwest of Niihau westermost of the larger islands. Southern limits of the chart include Palmyra Island which lies just north of the equator.

Land areas on the chart are shown in the conventional buff tint. The relatively shallow waters around islands, reefs, and atolls are tinted in blue. Navigation lights, loran towers, and prohibited areas are represented in magenta.

This edition of the chart includes loran lines of position for rates 1L0, 2L4, 2L5, 2L6, and 2L7. Numerous additional depth curves and soundings have been added throughout the chart.

Chart No. 4000 is published at the scale of 1:3,121,170. Distribution is made by sales agents, district offices, and the Washington office of the Coast and Geodetic Survey. The chart is sold at 75 cents a copy.

Sales agents located in Honolulu are the District Office, Coast and Geodetic Survey, Federal Office Building and the McWayne Marine Supply Ltd., 211 Merchant Street.

⚓ ⚓ ⚓

A recent returnee to active duty after undergoing a complete overhaul and repowering in a west coast shipyard is the U.S. Corps of Engineers dredge *Chester Harding*, a gravel-eating veteran of the seagoing Army. Repowered with a pair of Enterprise DMQ 38 marine diesel engines and two controllable pitch propellers (the first U.S. dredge with such propellers), the vessel is under the jurisdiction of the U.S. Army Engineer District, Portland, Oreg., and is currently engaged in dredging channels, bars, and rivers along the west coast.

A hopper dredge of the seagoing type, the *Chester Harding* has the molded hull and lines of an ocean vessel. Its new propulsion system has resulted in a great increase in maneuverability, an important factor for a ship that frequently works in narrow waterways or restricted areas near banks or piers. Drag pipes on the dredge are 22 inches in diameter. Bottom material is raised through these pipes by diesel-powered pumps. The drag arms are raised and lowered by means of hoisting tackle and electric winches. Drag head gratings at the bottom of the arms screen the material being sucked up.

The displacement of the dredge is 7,523 tons loaded and 3,505 tons light. It has eight hoppers with a total capacity of 2,720 yards. These are filled simultaneously by two suction heads, one on each side of the dredge. When working in mud, the hoppers can be filled in about 20 minutes. It takes two to three times longer to fill the dredge with sand due to the greater density of the material.

⚓ ⚓ ⚓

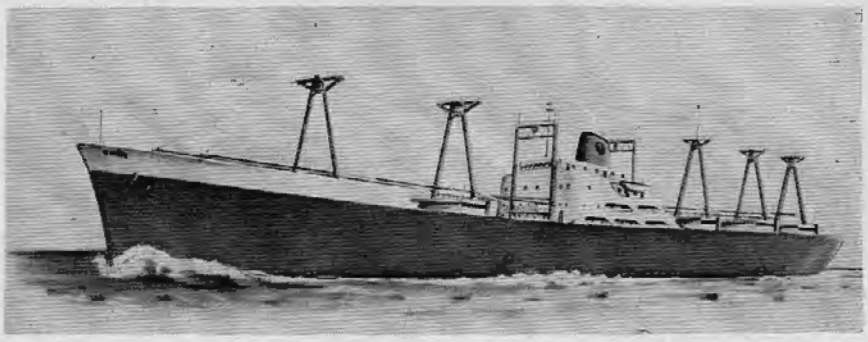
Thirty Liberty Ships from the Government's laid up fleet, characterized as damaged or unstrengthened, are to be sold for scrap according to newspaper reports. Fifteen of the vessels must be broken up in this country. Since 1957, when the Liberty disposal program began, 129 vessels have been sold for $9,721,641.

⚓ ⚓ ⚓

The steam schooner, *Wapama*, built in 1915, will join the San Francisco Maritime Museum at Aquatic Park in 1960. The vessel is presently being rebuilt at the Moore Drydock Company of Oakland, Calif.

⚓ ⚓ ⚓

Applications for a Government-guaranteed construction mortgage loan for four containerships have been made by Pan-Atlantic Steamship Corporation. The vessels will have a 550 container capacity, and will be used in the intercoastal trade. Their cost has been estimated at $20 million each.



Signing of a $36,016,784 contract for the construction of three new 20-knot Mariner type ships has been announced by the Maritime Administration.

The contract was signed by American Mail Line Ltd., of Seattle, Wash., and the Federal Maritime Board with Todd Shipyards Corp. of San Pedro, Calif.

This construction will be the first step in American Mail Line's long-range 20-year agreement with the Federal Maritime Board to replace its present fleet of eight owned and one chartered vessel with eight new vessels at a total cost of over $100 million. The ships will be operated in the company's subsidized service on Trade Route 29, which provides transpacific freight service between Pacific Northwest ports and ports in the Far East and South East Asia, returning to the Pacific Northwest via California on certain voyages.

These ships are basically Mariner type ships, design MA C4–S–1s, having as principal characteristics:

Length overall	563'7¾"
Beam	76'
Draft full load	31'6"
Deadweight total	14,885 tons
Passengers	12
Speed	20 knots

523475—59——2

ANYTHING CAN BE A HAZARD

"Almost anything you can think of can be a potential source of accidental injury," according to an interesting article in the *Atlantic Marine News*. Carelessness, thoughtlessness or sometimes simple horseplay can turn a commonplace object into a hazard aboard ship.

OUCH!

Cartoons courtesy *Atlantic Marine News*

One lost-time injury reported was that of an oiler who caught his finger between a valve wheel and the nameplate over the wheel.

Another seaman injured himself while lying in his bunk reading. He joggled the springs of the upper bunk with his foot in order to attract the attention of the man above. The spring was loosened at one end and the strap under tension whipped out and struck the seaman on the forehead. No, there was no lost time involved, but someone had a very sore head.

Unfortunately, "some people get wiser after they have been hurt—sometimes it is too late."

DEATH IS SO PERMANENT

There is an old saying that a man's troubles are all over when he dies. True as that may be, what about his widow and children? They are faced with a future alone, loss of support, grief stricken, and possibly bitter over the knowledge that their great loss was so unnecessary.

Oh yes, the accident always happens to the other fellow, not you. Coast Guard Headquarters regularly receives reports which refute that belief. Of course we can only assume the victims held that thought, they aren't telling anyone what they believed.

Let's consider a couple of the many unnecessary deaths: The ship was anchored in a U.S. port. Two seamen were painting the ship's side from a stage. Neither man wore a life preserver or a life vest. They just didn't, and neither the bos'n nor the chief mate ordered them to. While adjusting the height of the stage one of the stage lines became fouled. Instead of carefully controlling the stage while clearing the snag, the seamen kicked the knot, the snag cleared with a run spilling both seamen into the water.

One man was able to cling to the dangling stage and was rescued but the other, the one who kicked the snag, drifted rapidly aft with the current. Although he was described as a good swimmer, he was unable to reach any of the life rings thrown to him by his shipmates on deck, and disappeared beneath the surface before a boat could be lowered to effect a rescue. Why didn't he wear a life preserver? What's wrong with kicking a snag out of a stage line? We couldn't ask him for his body has not been recovered—it wouldn't have done any good anyway—he isn't talking.

Take another case of failure to use safety equipment. A welder was up the radar mast sitting on the yard arm. He was wearing a safety belt. His helper climbed up to help hold the material in place until the welder made just a couple of tacks. A safety belt had been provided the helper by the contractor, but he didn't wear it. While holding the material in place, he lost his balance and fell 30 feet to the steel deck below. Our information came from the welder. The helper isn't talking, he was dead on arrival at the hospital.

Maybe these men thought accidents always happen to the other fellow, too.

It's a simple matter to wear a life preserver, or safety belt, or take what other safety measures the job might require. The ones who do generally are still around, those who didn't "ain't talking." It's your life—what's it worth to you—and your dependents?

SHADES OF MOBY DICK

A whale was given credit for the sinking of a fishing vessel in a casualty report recently submitted to the Coast Guard.

The vessel was drifting on her sea anchor approximately 60 miles offshore when she was suddenly struck by an unidentified object. The captain could see white water all around and deduced that he had been hit by a whale.

The boat started leaking. The main and hand pumps could not keep up with the flow of water. Eventually the main pump quit. Pump repairs were offered by another fishing vessel. Despite the repairs, the main pump would work to only 30 percent of capacity. A Coast Guard motor lifeboat towed the fisherman to port. The fishing boat was awash on her arrival. The whale was not available for comment.

KEEP YOUR PUMPS IN GOOD WORKING ORDER

OIL POLLUTION PANEL
MERCHANT MARINE COUNCIL
UNITED STATES COAST GUARD
WASHINGTON 25, D. C.

PANEL SECRETARY:

GEORGE C. CHARLTON
SECRETARY
AMERICAN MERCHANT
MARINE INSTITUTE, INC.
11 BROADWAY
NEW YORK 4, N. Y.

AN IMPORTANT LETTER to the crews of all U.S. Merchant Vessels

Gentlemen:

To the tankermen reading this, the Oil Pollution Panel and its work will be familiar because we have been in direct contact since 1955 through the medium of periodic Pollution Bulletins. The fine cooperation and results obtained through these Bulletins has prompted the Panel to expand activities to encompass all U. S. vessels, with the Proceedings of the Merchant Marine Council acting as the new medium. It is hoped to periodically present items of interest and part of the material will be designed for removal and posting on the ship bulletin boards. It is felt that there will also be considerable reference material appropriate for filing by the officers, (the Panel hopes, however, that the deep-six file is not the one used). To give you a little better idea of the type of material we hope to send you in the future, following this letter you will find a poster for the bulletin board. Elsewhere in this issue you will also find an article on the history of pollution since it was first reported in 1754. It is hoped you will find interest in, and use for these.

You may be asking yourself some questions about the Panel and its work which I can perhaps anticipate and answer with the following brief review. An International Conference on Oil Pollution was held in London in 1954 and focused world-wide attention on the subject, even though pollution has been a problem since oil was first discovered. At that Conference, the U. S. delegates reaffirmed their belief that the best way to combat pollution was through an intensive program of education and cooperation between industry and the government. This was based on the concrete results of such work which has been going on in this country since 1922. After the Conference the American Merchant Marine Institute proposed an intensification of anti-pollution efforts and the Chief of the Office of Merchant Marine Safety, USCG, suggested the formation of the present Panel, which is sponsored by and advisory to the Coast Guard. The Panel was appointed by the Commandant of the Coast Guard in September 1954 and has functioned continuously since that time to coordinate industry efforts. The Panel has circulated various releases to ship operators and their vessels, distributed 12,000 Pollution Bulletins, and considered and advised the government on such

(Continued on back of poster)

are YOU guilty?

DYING DUCKS: This unfortunate pair of Broadbills are part of the thousands of wintering ducks killed by oil-polluted waters. A dying hen leans across the dead body of a drake to glare at the camera in the World Wide Photo above.

WATCH THOSE BUNKERS!!

matters as the International Convention which resulted from the 1954 Conference. This initial approach to all seamen is a further expansion of Panel activities.

In asking for your cooperation, I will not dwell on the fact that there are laws and international conventions against polluting navigable waters. In this country, violations of these laws carry with them a maximum fine of $2,500 and/or a maximum of one year imprisonment. Neither will I devote much time to telling you of the reasons for the pollution laws. Suffice it to say that oil on the waters of our oceans, rivers and harbors constitutes a menace to ships, waterfront property, health, wildlife and recreational facilities. With the recent trend of more and more families going to the beach for the weekend, this last menace becomes increasingly important. Every time someone comes out of the water to hunt kerosine with which to clean the "tar" off their feet, they will undoubtedly decide to write their congressman about the "terrible conditions" caused by "those ships" pumping their bilges or tanks. Experience has proven this. Even though the general public does not know the difference between a freighter a tanker, a liner and an ore ship, nor between an American and foreign flag ship, the blame for the oil on the beach automatically falls on you.

The alternatives to your cooperation and intensified anti-pollution efforts are more and stronger laws, which I am sure would work much greater hardships on you than keeping a little better eye on those bunkers coming aboard, or waiting another hour to pump the bilges or slowing down the loading rate a little when topping off liquid cargoes.

The Panel stands ready to furnish you any information or material on pollution which you may request. In turn, we would like to have your comments on our program and any suggestions you may have for its betterment. You will probably find that your company is represented on the Panel, so send your comments to the home office and they will forward them to us.

Remember, it takes all of us to lick pollution, and if we don't lick it, we will find the operation of ships made more and more difficult for both the men ashore and at sea.

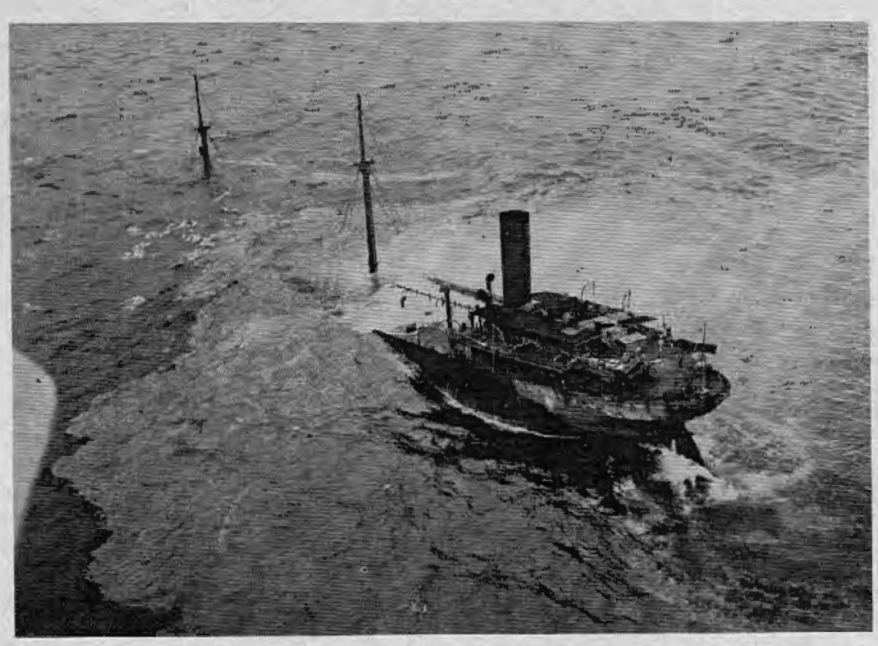
Very truly yours,

E. W. Fiske Jr.

Captain E. W. Fiske, Jr.
Chairman
Oil Pollution Panel

EFFORTS TO REDUCE OIL POLLUTION

• • • PAST • • • PRESENT • • • FUTURE



AT THE end of World War II, "61 loaded tankers were wrecks along the Atlantic and Pacific coasts and 210 million gallons of oil trapped in these wrecks was to become a future source of oil pollution of our coasts for many years to come."

IN 1754 Jonas Hanway published his report of British trade over the Caspian Sea. He states that at Holy Island (off Baku) oil was loaded in bulk in wooden vessels and they leaked so badly that the sea was sometimes covered with it "for leagues together." This is the earliest record of pollution of the sea which has been found.

A century later oil was moved in bulk on the Volga in wooden barges. The barges leaked very badly causing heavy pollution. It was noticed by the barge men that when the oil level within the barge was equal to the water level outside the oil leakage was reduced. But with light gravity oils they always stood at higher levels than the water outside. The barge men conceived the idea of carrying stones on the barges when they carried these lighter oils, thus increasing the draft and thus the outside water pressure against the oil cargo within. This expedient substantially reduced the oil which was lost, which in turn reduced the oil pollution—but even so it was very heavy on the Volga at that time. In 1907, 1500 wooden petroleum barges were in use on the Volga.

OIL POLLUTION ON LAND

The most extensive case of oil pollution originated on land and was described as follows:

No case of oil pollution has ever equaled that which took place on Black Creek in the township of Enniskillen in Canada in 1862. The first flowing well was struck on January 11 and before October not less than 35 wells had commenced to flow. There was no use for the oil at that time. The price had fallen to 10 cents per barrel. The unsophisticated settlers of that wild and wooded region seemed inspired by an infatuation. Without an object save the gratification of their curiosity at the unwonted sight of a combustible fluid pouring out of the bosom of the earth they seemed to vie with each other in plying their hastily and rudely erected "spring poles" to work the drill that was almost sure to burst at a depth of a hundred feet into a prison of petroleum. These wells flowed from 300 to 7,500 barrels per day. Three years later this oil would have brought $10 a barrel, gold. Now its escape was the mere pastime of full-grown boys. It floated on the waters of Black Creek to the depth of 6 inches and formed a film on the surface of Lake Erie.

At length the stream of oil became ignited and the column of flame raged down the winding creek in a style of such fearful grandeur as to admonish the Canadian squatter of the danger. From detailed determinations Professor Whinchell says, "I have ascertained that during the spring and summer of 1862, not less than 5 million barrels of oil floated off on the waters of Black Creek—a national fortune totally wasted." (*History of Petroleum*, J. T. Henry, 1873.)

BULK TANKERS

The prototype of the present bulk tanker, the SS *Glückauf* entered New York on her maiden voyage in August 1886. From that time to the end of the century there was a marked increase in the number of bulk tankers, but practically all of them entering U.S. ports were in the clean trade.

When the great Spindletop Gusher came in near Beaumont in Texas in January 1901, the center of oil production in the United States shifted a thousand miles to the southwest over night, and tankers became the most economical means for moving the crude oil to the northeast and abroad.

It appears that there was considerable oil pollution of the Sabine-Neches

NOT A pretty picture. This one shows what oil pollution can do to any harbor.

and the canal around Beaumont and Port Arthur, but it gradually cleared up. Off Sabine bar, however, the situation was bad and it stayed that way for several years. In 1906 a Coast and Geodetic Survey party made a current survey of the Gulf of Mexico and there was so much free oil off the Texas and Louisiana coasts that they marked out two oil fields some distance out in the Gulf. Much of this oil may have been seepage from the offshore oil fields now being developed.

It is said that there was a constant oil slick westward of Sabine Pass and small vessels always anchored in it to avoid the heavier seas outside the slick. How much of this oil came from ships and how much from natural seepages is not known, but it is certain that the condition has steadily improved and is now nearly nonexistent.

WORLD WAR I

The most critical periods in the history of oil pollution of the navigable and coastwise waters of the United States have been associated with WAR. Immediately following World War I the National Board of Fire Underwriters started to receive complaints of oil pollution of the harbors of the Nation. The Board determined to make an extensive investigation of conditions in all ports of consequence, which was concluded in October 1920. The results of this investigation were presented to a conference of Government, oil industry, shipping and other interested groups in New York on February 18, 1921.

It was suggested by the National Board that improvement might result if Section 13 of the Rivers and Harbors Act of March 3, 1899, was amended and a bill for this purpose (S. 1320) was actually introduced by Senator Frelinghuysen on April 28, 1921. Many other bills were introduced and hearings were held but the general feeling prevailed that (a) there had been insufficient study of the sources of oil pollution, and (b) that sources identified with shipping could not be properly controlled except by international agreement.

On July 1, 1922, the House, by joint resolution, requested the President to call a conference of maritime nations for the purpose of adopting measures for the prevention of the pollution of the seas and coastal waters of nations by oil. Thereafter the Department of State organized an Interdepartmental Committee on Oil Pollution. The Bureau of Mines of the Department of the Interior then tendered its services to the Interdepartmental Committee offering to make a thorough investigation of the technical aspects of all oil pollution. This offer was accepted by the Secretary of State. The Bureau of Mines then invited the American Petroleum Institute to assist with the work by assignment of industry employees to assist the Government representatives.

OIL POLLUTION ACT OF 1924

The American Steamship Owners Association (now the American Merchant Marine Institute) was given a similar invitation. The years 1921 and 1922 were devoted to many meetings, hearings, conferences and investigations and finally on January 23, 1923, a preliminary report was submitted to the Director of the Bureau of Mines by representatives of that Bureau and of AMMI and API, for transmittal to the Interdepartmental Committee on Oil Pollution. The final report of that Committee was not completed until February 1924. Based in large measure on the navigable waters section of this report, the Oil Pollution Act of 1924 was drafted, passed by the Congress and approved on June 7, 1924. This act has proven to be adequate for the protection of the navigable territorial waters of the United States. The Interdepartmental Committee made its final report to the Secretary of State on March 13, 1926, thus placing the United States in position to proceed with an international conference on pollution.

1926 INTERNATIONAL CONFERENCE

Early that year (1926) the Department of State completed its arrangements for a preliminary conference on oil pollution of navigable waters pursuant to the joint resolution which had been approved July 1, 1922. On its advisory committee the Department of State appointed representatives of the American Petroleum Institute, the American Steamship Owners Association (now AMMI), the Pacific American Steamship Association and the Ship Owners Association of the Pacific coast.

The preliminary international conference drafted and adopted a "final act" which was deemed to be satisfactory to our Government and to the shipping and petroleum industries. The International Conference on Oil Pollution met in Washington, D.C., on June 8, 1926, and the "final act" was signed by the representatives of 13 nations without reservation on June 16, 1926.

No convention resulted from this conference and no nation adopted it.

The failure of ratification of the 1926 Convention on Oil Pollution did not serve to discourage the Government and industries of the United States from continuing their efforts in the interest of further pollution abatement.

At the annual meeting of the American Petroleum Institute in December 1926 its Board voted $50,000 to cover the expenses of a committee to make a national survey of oil pollution with recommendations. The survey was made by 81 engineering representatives of 51 companies with about 100 assistants. The survey covered 619 oil plants and 177 oil fields and 254 marine terminals. The report was

completed and submitted to the Board on December 5, 1927. The recommendations contained in the report were then implemented by the engineers of the 51 companies who had made the study.

This study related to *inland* sources of oil pollution and to deep sea oil terminals. The report was submitted to the Committee on Rivers and Harbors of the House of Representatives at the Hearings on May 2, 3, and 26, 1930, on Pollution of Navigable Waters.

Early in 1930 a committee of shipping representatives was appointed by the American Ship Owners Association (AMMI) to prepare a manual for use on shipboard for avoidance of oil pollution.

On December 11, 1930, the final draft of this manual was approved by the Executive Committee, AMMI and large numbers were distributed to individual ships and ship owners. The title of the Manual was: "Recommended Methods and Precautionary Measures for Preventing the Pollution by Oil of Harbors and Coastal Waters by Oceangoing and Harbor Vessels, Including: Excerpts From the Oil Pollution Act of 1924 and Recommendations of the Preliminary International Conference on Oil Pollution of Navigable Waters, 1926."

LEAGUE OF NATIONS

On June 8, 1934, the British Ambassador to the United States advised our Department of State that his Government proposed to place the "Pollution of the Seas" before the League of Nations and trusted that our Secretary of State would approve. On June 15, 1934, Secretary Hull informed the British Ambassador that, as pointed out in his note of September 11, 1933, he would be glad to cooperate.

On July 19, 1934, the United Kingdom Government addressed a letter to the Secretary-General of the League of Nations on the subject of the pollution of the sea by oil.

Subsequent action of the Council of the League of Nations authorized the Communications and Transit Organization to address a questionnaire to some 69 nations requesting information on 8 points which included the existing state of oil pollution, its effects, means for its abatement and whether or not the suggestions of a convention on the subject would be entertained.

The questionnaire was sent out on July 23, 1935, and up to August 15, 1935, 13 nations had replied. The replies in the main indicated a willingness on the part of the nations to cooperate, but a difference of opinion as to the basis for cooperation, and no international action resulted.

With respect to the situation on its coasts the United States of America replied: "Evidence is given of extensive damage on the Atlantic coast (from) 1919 (to) 1930. In 1934 reports from various United States coastal areas showed that pollution had disappeared or had greatly improved."

U.S. COAST GUARD STUDY

To secure a *detailed* and accurate report on the existing condition of our coasts and ports with reference to oil pollution, Robert F. Hand, Chairman, Committee on Oil Pollution of Navigable Waters by Oil, American Merchant Marine Institute, addressed a letter to the Commandant of the Coast Guard on October 19, 1934, requesting that the Coast Guard organization in all districts undertake a detailed study of our coasts and ports to determine their condition as to oil pollution.

The study required several months to complete and it indicated that with the exception of a few local areas the condition of the sea coasts and ports of the United States was satisfactory with respect to oil pollution and that substantial improvement had taken place since the first World War and especially since the late 1920's. This detailed report confirmed an earlier general report on the coastal conditions made on July 14, 1931, by a Joint Committee representing the American Society of Civil Engineers, American Society of Mechanical Engineers and the American Society of Chemical Engineers under the American Engineering Council. This Joint Committee polled the individual State Sanitary Engineers and found conditions, with a very few exceptions, satisfactory with respect to coastal and port pollution by oil.

During the period 1935–41 many Government and Industry groups continued their efforts to improve the oil pollution situation in the United States. The National Resources Committee, of which Harold L. Ickes was Chairman, made its Report on Water Pollution, in July 1935.

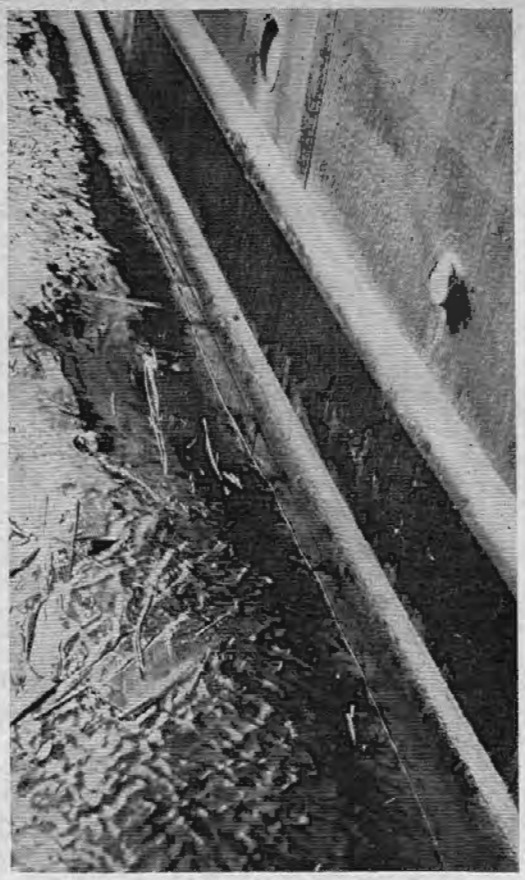
The supervisor of the Port of New York, Capt. T. H. Taylor, U.S.N., issued revised regulations for the protection of the New York port area on July 25, 1935.

The U.S. Public Health Service (then under the Department of the Treasury and now under the Department of Health, Education, and Welfare) continued its valuable studies on water pollution of all kinds. The publications of this agency on the subject of water pollution alone exceed one hundred documents.

TANK VESSEL REGULATIONS

In 1936 regulations were promulgated by the Department of Commerce under revised statute 4417(a) for the control of tank ships and tank barges. These regulations contain a chapter on "Operations" in which are found provisions to prevent oil pollution. These regulations have the force of law under the penal code of the United States.

AN EXCEPTIONALLY heavy oil pollution of a northern beach. This oil quickly disappeared when wave action, depositing new layers of sand on the beach, acted to bury the oil where it stranded.



FAILURE OF personnel to repair a leak in one of this vessel's fuel tanks was responsible for this scene.

In 1938 the Department of Commerce issued the "Manual for the Safe Handling of Inflammable and Combustible Liquids." This Manual contains an extensive section on procedure for avoiding oil pollution.

The Tanker Regulations and the Tanker Manual have been constantly revised and since 1942 they have been a responsibility of the United States Coast Guard.

During all of this pre-World War II period standing committees of the American Merchant Marine Institute and the American Petroleum Institute, the National Fire Protection Association and other groups continued to work on oil pollution problems and the disposal of waste materials.

At the time of the attack on Pearl Harbor the oil pollution condition in the ports and on the coasts of the United States was satisfactory and improving as measured by Government and Industry reports, notwithstanding a prodigious increase in the use and transportation of petroleum since World War I.

WORLD WAR II

With the declaration of war many changes took place which lowered the standards of pollution control on our ships and in our ports. Some of these were:

(a) The arrival in port at one time of large numbers of ships as the result of convoy operations. This overtaxed the bilge and ballast water facilities of the ports.

(b) Shipping was operated as a "pool" and the old peacetime runs were abandoned. Masters of vessels operating in and out of strange ports carried ballast in excess of requirements for minimum safety.

(c) Inexperienced officers and crews manned many of our merchant vessels during the war.

There is no finer example of Government-industry cooperation than the attempt of shipping associations and the Government to control oil pollution on our coasts and in our harbors during World War II.

(a) Three days before the Pearl Harbor attack the petroleum industry completed a survey of principal oil terminals with recommendations for increased ballast handling facilities where needed.

(b) A request of the Navy for waiver of all pollution laws to permit ballast and bilge discharge into harbors was referred by the Coast Guard to an interdepartmental and industry committee which after much effort succeeded in producing the "Suggested Procedure for Disposal of Ballast Water" a uniform plan which was adopted by the Army, Navy, Maritime Commission and the Coast Guard.

(c) Two large posters designed for the pump rooms and engine rooms of ships were designed by a joint Government-shipping industry committee and thousands of copies were posted on all merchant ships.

(d) A ship casualty reporting and analysis section was established by the Coast Guard. From the records of this section the location and cargo and other particulars of all tankers sunk on our coasts could be ascertained. At war's end, 61 loaded tankers were wrecks along the Atlantic and Pacific coasts and 210 million gallons of oil trapped in these wrecks was to become a future source of oil pollution of our coasts for many years to come.

Conferences were held at Coast Guard Headquarters on the subject of oil pollution in June 1943 and March 1944. The record of this last conference will show the conditions with reference to pollution in our major ports toward the end of the war and the recorded reports of the District Coast Guard officers indicated that conditions were exceptionally good.

GOVERNMENT AND INDUSTRY COOPERATION

Since the end of World War II, cooperative work in the interest of pollution abatement between Government and industry has been intensified and wildlife organizations have also cooperated.

Posters telling the story of the damage caused by oil pollution have been prepared jointly by the U.S. Coast Guard, U.S. Fish and Wildlife Service, American Merchant Marine Institute, Association of American Ship Owners and the American Petroleum Institute. Nineteen thousand such posters have already been distributed to

nearly all U.S. ships and posted on many piers and docks.

A comprehensive survey of the ports and coasts of the United States with respect to oil pollution was undertaken at the request of R. J. Baker, American Merchant Marine Institute, who on March 14, 1950, asked the Commandant, U.S. Coast Guard, to undertake such a study. On June 1, 1950, the Acting Chief of Operations, U.S. Coast Guard, reported for each Coast Guard District stating in summary as follows: "The replies confirm in general the opinion expressed in your letter that progress has been made in eliminating pollution of coastal and harbor waters of oil."

After more than a year of study by the best and most experienced talent in the shipping industry of the United States, a committee under the auspices of the American Merchant Marine Institute prepared, in April 1953, for the guidance of shipboard personnel, an Oil Pollution Manual, 10,000 copies of which have been distributed to all vessels of the U.S. Merchant Marine. The AMMI was supported in this important effort by the Pacific American Steam Ship Association, the Pacific American Tankship Association and the American Petroleum Institute. This Manual sets forth procedures for avoiding oil pollution for both tankers and dry cargo ships. These cooperating Associations at this date still have standing committees on pollution.

1954 INTERNATIONAL CONFERENCE

In January 1954, the Government of Great Britain proposed an International Conference on Pollution of the Sea by Oil, to be held in London in late April. The aim of the proposed Conference was stated to be, "to reach agreement on the terms of a Convention which it is hoped would be signed before the conclusion of the Conference." The United States was invited to attend and participate and on February 3, the Department of State held a meeting at which it was decided that the United States should be represented. On February 26, the Department of State accepted the British invitation.

Subsequently, a Government-industry technical working group was appointed to prepare for the Conference and numerous meetings were held prior to the Conference, which started on April 26 and concluded on May 12. An International Convention resulted from the Conference and had been subscribed to by twelve nations as of May 1959. While the United States is not signatory as of this writing, the Government is now considering our participation and adherence to the established zones by U.S. shipping had been pledged by the head of the U.S. delegation at the close of the Conference. The Convention prescribes zones in which oil may not be discharged, including a 50-mile zone from any shore; the keeping of an oil record book, and conditions for the installation of slop handling facilities and oily water separators.

OIL POLLUTION PANEL

Rear Admiral H. C. Shepheard, at that time Chief of the Office of Merchant Marine Safety, USCG, proposed formation of the present Pollution Panel in a letter to the AMMI in July 1954. This proposal was accepted by industry with enthusiasm, and the Panel was appointed by the Commandant of the Coast Guard in September. One of the first tasks of the Panel was to oversee the inventorying of U.S. slop handling facilities, so as to be prepared to reply to a questionnaire on such facilities which was to be circulated by the United Nations to all maritime nations in keeping with Resolution 8 adopted at the Pollution Conference in London. This UN questionnaire was received by the State Department in late January 1955, and in February questionnaires on slop facilities were sent to over 100 oil handling terminals, 900 commercial and naval shipyards, and 62 tank cleaning companies. Replies to these questionnaires were consolidated and constituted a solid basis for the U.S. reply to the UN questionnaire, which was transmitted to the UN on January 4, 1956.

It was during this period that oil pollution conditions were reported as bad on the east coast of Florida and this resulted in many conferences of government, industry and municipal representatives. The Panel also intensified its efforts through direct contact with all U.S. tankers, and the Coast Guard instructed its ocean station and weather vessel to report any signs of pollution. It is encouraging to note that no cases had been reported by these vessels through April of this year.

Resolution 7 of the London Conference called for the establishment of national oil pollution committees in the various participating nations and in keeping with this, the U.S. National Oil Pollution Committee held its first meeting in September 1956. This committee is composed of representatives of the various government agencies concerned with pollution and functions mainly to advise the Department of State on international matters of pollution.

The Panel as another means of reducing pollution on the Florida east coast reproduced and distributed a U.S. Hydrographic Office Pilot Chart which listed the advantages of transiting the Florida Straits southbound to the eastward of the axis of the stream. It is felt that this did much to improve conditions in that area, and in December representatives of both Government and industry met in Miami with representatives of various Florida east coast communities to discuss conditions.

Efforts in 1957 continued in the direction of cooperation and education and in January 1958, the American Petroleum Institute in cooperation with the USCG Pollution Panel, retained an observer to make daily checks of three beach areas north of Miami Beach. This procedure was continued until the middle of January 1959, at which time a full year of observations was completed. The amount and description of oil and debris deposits, weather, sea and tide conditions, and other pertinent information have been recorded daily and give an accurate account of conditions, as well as influencing factors and potential sources of the pollution.

In addition, an observer completed, in late January 1959, an observation trip into New England. This trip ended a series of east coast pollution inspections which cover the area from Key West to Boston, and include extensive observations in the Norfolk, Chesapeake Bay, Delaware River and New York waterways. In August 1959, the same observer commenced a similar survey of Great Lakes conditions.

This brief review of pollution and its history is not intended to be a full record. It has been a problem of many countries for many years and the seeking of a solution has consumed countless hours of time from men in industry and Government alike.

In this country conditions are generally good. There are, however, cases which can be traced directly to shipping and as long as these cases occur, shipping generally is blamed as the major source of oil pollution. Do everything you can to make conditions even better than they are, and the Government, the public, and your employer will be in your debt.

nautical queries

Q. State which section of the crankshaft of a triple expansion engine is subject to the greatest torsional stress and explain why.

A. The crankshaft is made the same size from end to end, for simplicity and uniformity, although the after section is subjected to greater torsional stresses than the forward section since it must transmit the power of three cylinders, while the forward section simply transmits the power of its own cylinder.

Q. What is meant by "lap" on a valve and what kinds of "lap" are there?

A. "Lap" is the distance that the steam valve edges lap over the edges of the ports when the valve is in its central position. The part projecting over the steam port edge is called "steam lap," while that part of the valve projecting over the exhaust port edge is called "exhaust lap."

Q. Before turning over main propulsion reciprocating engines for the purpose of warming up, what precautions should be taken?

A. 1. See that jacking gear is disengaged.

2. Get permission from bridge.

3. See that condenser and auxiliaries are in operation.

4. See that drains are open.

5. Pass warning to stand clear.

6. Rock engine a few times without going over dead centers to ease out water caused by condensation.

7. Roll engine carefully over dead centers to get rid of any excess condensation.

Q. (a) If the H.P. engine (only) is linked out, how will it affect the I.P. receiver pressure?

(b) If the I.P. engine (only) is linked in, how will it affect the work done by the I.P. and H.P.?

A. (a) If the H.P. is linked out, the I.P. receiver pressure will increase due to the fact that the steam in the H.P. cylinder will not be expanded to a pressure as low as before linking out.

(b) If the I.P. is linked in, the receiver pressure will be increased, bringing about less effective pressure on the H.P. piston and an increased effective pressure on the I.P. piston, which will result in less work being done by the H.P. and more work done by the I.P.

Q. Describe the tube headers used on a sectional-header water-tube boiler and tell how they are connected to the other pressure parts of the boiler.

A. The headers are rectangular in cross section and sinuous in form. They are inclined at an angle from the vertical, usually 15° to 20°. The front headers are connected at the top by downtake nipples to the steam drum, and at the bottom by short nipples to the cross-box or mud drum. The front and rear headers are connected by tubes which are secured in the headers by expanding the tube ends until they make a tight fit in the tube holes. The upper ends of the rear headers are connected to the steam drum by means of large circulating tubes. Handholes are cut in all headers opposite the tube holes for inspection and cleaning. Spaces between headers are packed with asbestos wicking and cement for gas-tightness.

Q. (a) What is the purpose of the gas baffles in the water-tube boilers?

(b) What is the purpose of the steam baffles?

A. (a) Gas baffles are used primarily for the purpose of deflecting the gases over the tube banks in order that the maximum amount of heat may be transferred before the gases leave the generating tube banks. Gas baffles are also used to protect the steam drum, water drum and superheater tube nest from excessive heat.

(b) Steam baffles are used for the purpose of reducing surface agitation in the steam drum in order to reduce the water carry over.

Q. What are the causes of panting during the operation of a water-tube boiler?

A. Panting is usually attributable to one of the following causes: deficiency of air, excessive oil temperature, or poor air-oil intermixture.

Q. What are the causes of slag accumulations in the furnaces of oil burning water-tube boilers?

A. Slag accumulations are caused by the ash content of the oil, sea water or salt in the oil, and flame impingement due to improperly set or dirty oil atomizers.

Q. What purpose is served by the reducing valve on the oxygen breathing apparatus?

A. It reduces the high pressure of the oxygen bottle, which is approximately 125 to 135 atmospheres, to a pressure three or four pounds above atmospheric pressure.

Q. What are the limitations governing the use of the canister-type all-purpose gas mask?

A. Gas masks simply purify the air breathed through them, but do not supply oxygen, and therefore, should not be used in any closed unventilated compartment wherein there may be an atmosphere containing less than 16 percent of oxygen. Most gas masks give protection in gas concentrations up to 2 percent only and should not be used for protection against greater concentrations. They should not be used without the flame safety lamp to detect an oxygen deficiency.

Q. Explain in detail how you would prepare a safety lamp for use and how you would proceed to use it.

A. Carefully examine to see that all parts are in good condition, properly fitted and secured. Wire gauzes should be clean, wick trimmed of crust, and base filled with sufficient and proper fuel.

Light the lamp about five minutes before using in a test and adjust wick so that the height of the flame will be about ½ inch in the normal atmosphere.

Lower into hold or compartment very gently. If flame increases in height, the presence of gas is indicated; if flame decreases, flickers, or goes out, deficiency of oxygen is indicated.

Q. How shall hand-portable fire extinguishers be classified in regard to the type of fire which the unit could be expected to extinguish? How is each type of fire designated?

A. Hand-portable fire extinguishers shall be classified by a letter indicating the type of fire which the unit could be expected to extinguish as follows:

"A" For fires in ordinary combustible materials where the quenching and cooling effects are of first importance.

"B" For fires in flammable liquids, greases, etc., where a blanketing effect is essential.

"C" For fires in electrical equipment where the use of nonconducting extinguishing agent is of first importance.

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
Threw pot on galley shelf	Fell into boiling gravy—first-degree burns. Twenty-one days lost.
Entered galley when it was being rinsed with scalding water	Burns to both feet and ankles. Hospitalized.

Cleaning generator — Eyes sprayed with fluid cleaner. Hospitalized.

Slid down web framing of tank	Fell against beams. Hospitalized.
While painting boiler front, stood on soot blower element chain wheel	Fell. Fractured left leg.

Opened oil drum with fireaxe — Deep cut on wrist. Lost 3 days.

Attempted to light off boiler before purging fire box	Burns on face and arms.
Slipped on icy meat box deck	Sprained ankle.

Worked in bright sun without protective clothing — First and second degree burns. Lost 7 days.

Caught arm in line while taking turn on windlass	Pulled over gypsy head. Hospitalized.
Climbing mainmast	Hit knee against ladder rung. Ten days lost time.

MERCHANT MARINE STATISTICS

There were 949 vessels of 1,000 gross tons and over in the active oceangoing U.S. merchant fleet on August 1, 1959, according to the Maritime Administration. This was 12 more than the number active on July 1, 1959.

There were 32 Government-owned and 917 privately owned ships in active service. These figures did not include privately owned vessels temporarily inactive, or Government-owned vessels employed in loading grain for storage. They also exclude 26 vessels in the custody of the Departments of Defense, State, and Interior.

There was an increase of 12 active vessels and a decrease of 7 inactive vessels in the privately owned fleet. One freighter, the *Pacific Isle*, was returned from foreign to U.S.—flag. Four tankers, the *Transeastern*, the *Gulfcrest*, the *Erna Elizabeth*, and the *Thetis*, were completed (the latter two had not yet been delivered to their owners). This increased the total-privately owned fleet by 5 to 1,019.

Of the 102 privately owned inactive vessels, 31 dry cargo ships and 54 tankers were laid up for lack of employment, 13 less than on July 1. The others were undergoing repair or conversion.

The Maritime Administration's active fleet was the same as that of the previous month, while its inactive fleet decreased by 9. Eleven Liberty ships were sold for scrap. Two vessels were turned over by the Navy to the Administration for lay-up in the National Defense Reserve Fleet, making a net loss of 9 in the Administration's fleet, or a total of 2,094. The total U.S. merchant fleet, active and inactive, decreased by 4 to 3,113.

Four new oceangoing tankers, the *Gulfcrest*, *Transeastern*, *Erna Elizabeth*, and *Thetis*, were completed for U.S.—flag, although delivery of the latter two to their owners was delayed. One new tanker, two containerships, and a nuclear servicing barge were ordered. The total of large merchant ships on order or under construction in U.S. shipyards remained at 72.

Seafaring jobs on active oceangoing U.S. flag ships of 1,000 gross tons and over, excluding civilian seamen manning Military Sea Transportation Service ships were 50,223. Prospective officers in training in Federal and State nautical schools numbered 1,886.

AMENDMENTS TO REGULATIONS

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 59-29]

PART 172—NUMBERING REQUIREMENTS UNDER ACT OF JUNE 7, 1918

Subpart 172.25—Termination Requirements

MONTANA SYSTEM OF NUMBERING APPROVED

Acting under the authority delegated by Treasury Department Order 167-32, dated September 23, 1958 (23 F.R. 7605), the Commandant, United States Coast Guard, on July 1, 1959, approved the Montana system for the numbering of motorboats, which was established pursuant to the Federal Boating Act of 1958.

As provided in this approval, the Montana system shall be operative on and after Monday, July 20, 1959. On that date the authority to number motorboats principally used in the State of Montana will pass to that State and simultaneously the Coast Guard will discontinue numbering such motorboats. These motorboats presently numbered should continue to display the Coast Guard number until renumbered by Montana. On and after July 20, 1959, all reports of "boating accidents" which involve motorboats numbered in Montana will be required to be reported to the nearest county sheriff in Montana pursuant to the Substitute House Bill No. 15, Chapter No. 285, Montana Sessions Laws of 1959.

Because § 172.25-15(a)(2), as set forth in this document, is an informative rule about official actions performed by the Commandant, 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 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), and 167-17, dated June 29, 1955 (20 F.R. 4976), to promulgate rules in accordance with the statutes cited with the informative rule below, the following § 172.25-15 (a)(2) is prescribed and shall be in effect on and after the date set forth therein:

§ 172.25-15 Effective Dates for Approved State Systems of Numbering

(a) * * *

(2) Montana—July 20, 1959.

(Sec. 3, 60 Stat. 238, and sec. 633, 545; 5 U.S.C. 1002, 14 U.S.C. 633)

Dated July 13, 1959.

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

[F.R. Doc. 59-5930; Filed, July 17, 1959; 8:50 a.m.]

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

[CGFR 59-33]

SUBCHAPTER B—MERCHANT MARINE OFFICERS AND SEAMEN

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

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

U.S. MERCHANT MARINE ACADEMY COURSE AS "RADAR OBSERVER"; NOTICE OF APPROVAL

The course of instruction in the proper operation and utilization of marine radar equipment at the U.S. Merchant Marine Academy, Kings Point, New York, was reviewed after receipt of Maritime Administration letter dated February 3, 1959, requesting acceptance of certificates attesting to successful completion of such courses of instruction at the U.S. Merchant Marine Academy as evidence of the holders' qualifications as a "radar observer" so that such holders need not take a further examination. This inspection has been concluded with favorable results.

The new regulation, designated 46 CFR 10.05-46(d)(2), is added by this document in order to inform all persons concerned that the course of instruction in the proper operation and utilization of marine radar equipment is approved as given at the U.S. Merchant Marine Academy, Kings Point, New York. The holders of certificates of successful completion of such course of instruction, attesting to such successful completion on or after July 17, 1959, may present such certificates as evidence of qualification as "radar observer" and be exempt from taking the examination specified in 46 CFR 10.05-46(b).

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Treasury Department Orders 120, dated July 31, 1950 (15 F.R. 6521), 167-14 dated November 26, 1954 (19 F.R. 8026), 167-20 dated June 18, 1956 (21 F.R. 4894), and CGFR 56-28, dated July 24, 1956 (21 F.R. 5659), to promulgate regulations in accordance with the statutes cited with the regulation below, the following amendment designated § 10.05-46(d)(2) is prescribed and shall become effective upon the date set forth therein:

§ 10.05-46 Radar Observer

* * * * *

(d) * * *

(2) The course of instruction in the proper operation and utilization of marine radar equipment is approved as given at the U.S. Merchant Marine Academy, Kings Point, New York. This approval shall be effective for all certificates issued to the deck cadets of the U.S. Merchant Marine Academy and attesting to the successful completion of the course in the proper operation and utilization of marine radar equipment on or after July 17, 1959, and will continue in effect until this approval is suspended, canceled, or modified by proper authority.

(R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417a, as amended, 4426, as amended, 4438, as amended, 4439, as amended, 4440, as amended, 4442, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 3, 54 Stat. 347, as amended, sec. 2, 68 Stat. 484, sec. 3, 68 Stat. 676, sec. 3, 70 Stat. 152; 46 U.S.C. 391a, 404, 224, 226, 228, 214, 367, 1333, 239b, 390b, 50 U.S.C. 198)

Dated: August 10, 1959.

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

[F.R. Doc. 59-6784; Filed, Aug. 14, 1959; 8:50 a.m.]

Courtesy The Range Light

ARTICLES OF SHIPS' STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from 1 August to 31 August 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

Sea-Air Chemical Corp., 32–00 Borden Ave., Long Island City 1, N.Y., Certificate No. 396, dated 6 Aug. 1959, DECK–GLO HEAVY DUTY MARINE CLEANER.

Sea-Air Chemical Corp., 32–00 Borden Ave., Long Island City 1, N.Y., Certificate No. 397, dated 6 Aug. 1959, DECK–GLO NOTET.

Sea-Air Chemical Corp., 32–00 Borden Ave., Long Island City 1, N.Y., Certificate No. 398, dated 6 Aug. 1959, DECK–GLO GENERAL PURPOSE CLEANER.

Sea-Air Chemical Corp., 32–00 Borden Ave., Long Island City 1, N.Y., Certificate No. 399, dated 6 Aug. 1959, DECK–GLO HEAVY DUTY HARD SURFACE CLEANER.

Sea-Air Chemical Corp., 32–00 Borden Ave., Long Island City 1, N.Y., Certificate No. 400, dated 6 Aug. 1959, TANK–GLO OIL AND SLICK REMOVER.

Sea-Air Chemical Corp., 32–00 Borden Ave., Long Island City 1, N.Y., Certificate No. 401, dated 6 Aug. 1959, TANK–GLO TANK WASH.

DBA Dunn Chemical & Sales Co., 656 Townsend St., San Francisco, Calif., Certificate No. 402, dated 28 Aug. 1959, DUNALL ALL PURPOSE (DUNRISE).

AFFIDAVITS

The following affidavits were accepted during the period from 15 July 1959 to 15 August 1959:

W. A. Kates Co., 430 Waukegan Rd., Deerfield, Ill., PIPE FITTINGS (regulators).

Stratoflex, Inc., 220 Roberts Cut-off, P.O. Box 10398, Fort Worth 14, Tex., FITTINGS.[1]

Wheeler Valve Corp., 3115 Buffalo Drive, Suite 106, Houston 19, Tex., VALVES.[2]

[1] Affidavit covers hose and hose fittings which are required to have a minimum burst pressure of 4 times the design pressure.

[2] Affidavit covers valves for marine service limited to Class II piping and a maximum temperature of 200° F. when fitted with rubber gaskets.

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. 7–1–55
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

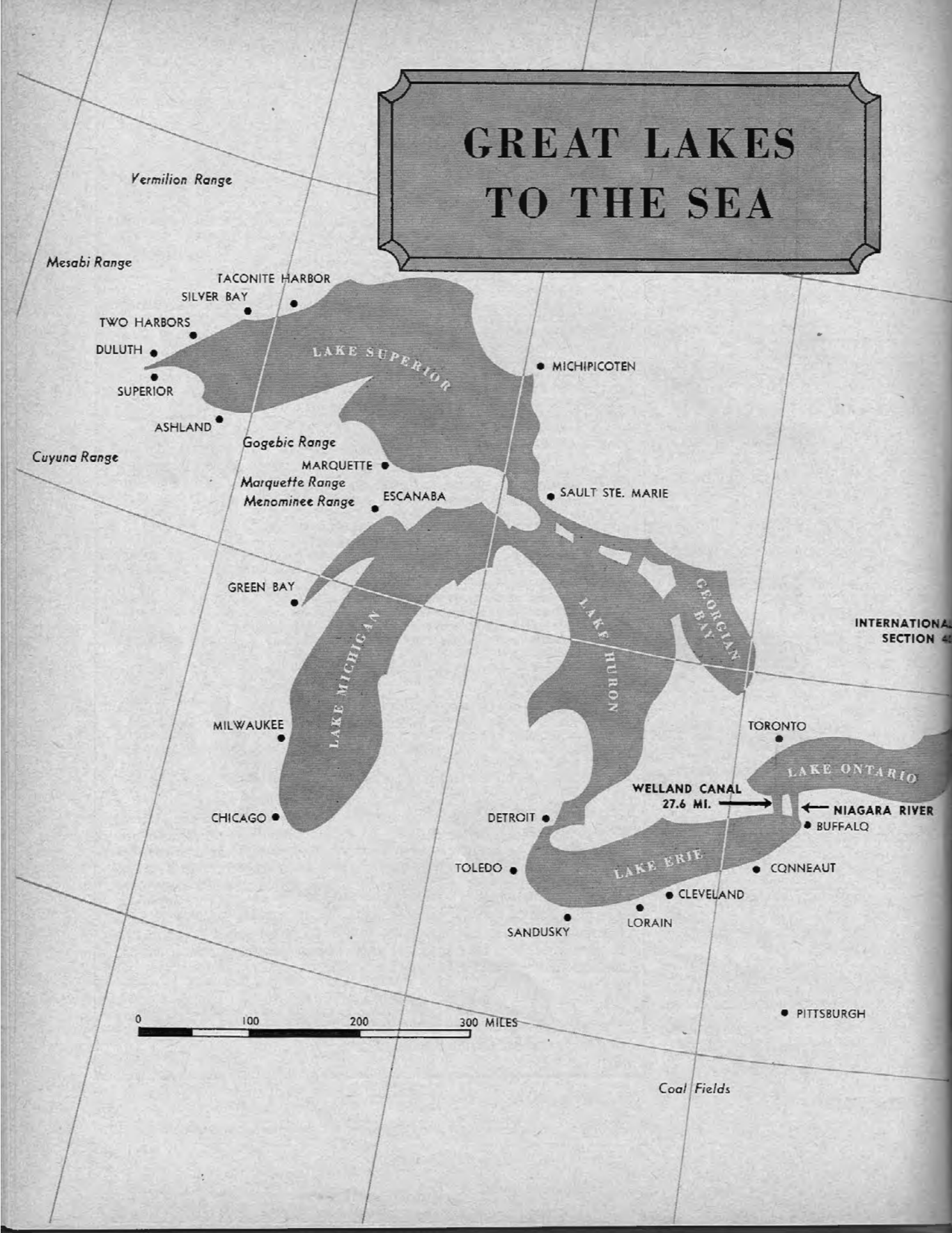
Official changes in rules and regulations are published in the Federal Register, which is printed daily except Sunday, Monday and days following holidays. The Federal Register is a sales publication and may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. 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 August 1959

The following has been modified by Federal Register:

CG–191 Federal Register, August 15, 1959.

U.S. GOVERNMENT PRINTING OFFICE: 1959


GREAT LAKES TO THE SEA
Vermilion Range
Mesabi Range
TACONITE HARBOR
SILVER BAY
TWO HARBORS
DULUTH
SUPERIOR
ASHLAND
LAKE SUPERIOR
MICHIPICOTEN
Gogebic Range
Cuyuna Range
MARQUETTE
Marquette Range
Menominee Range
ESCANABA
SAULT STE. MARIE
GREEN BAY
LAKE MICHIGAN
LAKE HURON
GEORGIAN BAY
INTERNATIONAL
SECTION
MILWAUKEE
CHICAGO
TORONTO
LAKE ONTARIO
WELLAND CANAL
27.6 MI.
NIAGARA RIVER
BUFFALO
DETROIT
TOLEDO
LAKE ERIE
CONNEAUT
CLEVELAND
LORAIN
SANDUSKY
0
100
200
300 MILES
PITTSBURGH
Coal Fields