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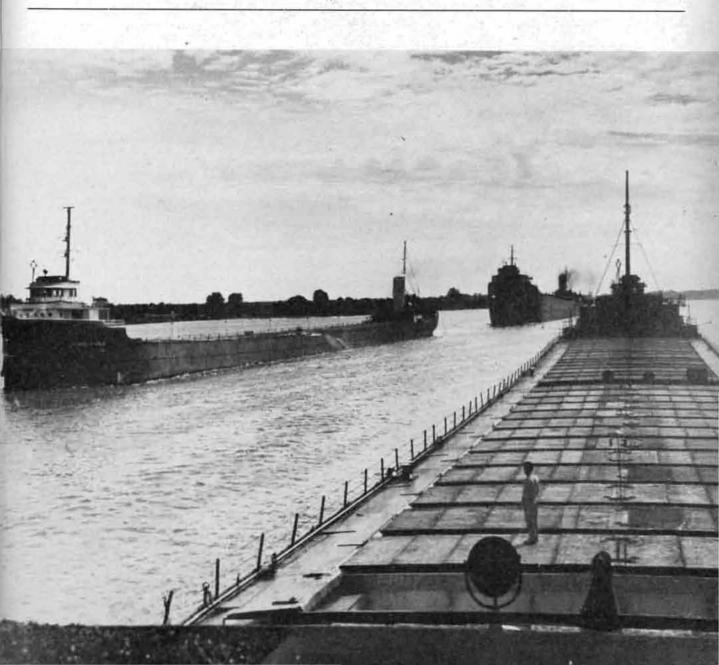
# MERCHANT MARINE COUNCIL

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## MERCHANT MARINE COUNCIL

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#### The Merchant Marine Council of the United States Coast Guard

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Division, U. S. C. G.

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The Cover: Heavy freighter traffic is a common sight in the St. Clair River (photograph courtesy Lake Carriers' Association).

## COUNCIL ACTIVITIES

The Council considered minor changes in the regulations for "Allotments of Seamen" to permit consular officers of the United States to approve the allotments of seamen who are signed on at foreign ports. These proposed changes have been referred to industry for comment prior to submission to the Commandant.

The intent and scope of the amendment dated 4 January 1946 (11 F. R. 300) to the conditional waiver of manning requirements, dated 8 April 1943 (8 F. R. 4736), as amended, have been the subject of questions raised by industry. For the information of the public a Navigation and Vessel Inspection Circular No. 68 has been prepared for the information and guidance of all concerned. This circular is set forth in detail on page 57.

The conditional waiver of manning requirements, as amended, applies to two classes of vessels; namely, first, merchant cargo and tank vessels engaged in business connected with the conduct of the war, and second, merchant cargo and tank vessels engaged in trade or commerce deemed necessary in the national interest. phrase "conduct of the war" is defined as comprehending the conduct of the Government's military and civilian programs in the readjustments to post-hostilities conditions in the United States, its possessions or territories, and in theaters of war, including disposition of personnel and materiel, government of occupied territory, and rehabilitation of liberated areas. This definition takes into account the abnormal condition resulting directly and indirectly from the conduct of the war, to which the present shortage of personnel and materiel is attributable. It rests upon the reason that the process of readjustment and conversion of the economy of the Nation from a war to a normal peacetime basis is as much a part of the conduct of the war as the opposite process of readjustment and conversion in the preparation for and prosecution of actual hostilities.

The Coast Guard accepted the recommendation of the War Shipping Administration and has made a finding that all merchant vessels registered, or enrolled and licensed, under the laws of the United States shall be considered to be engaged in business connected with the conduct of the war or deemed necessary in the national interest until 30 June 1946, unless a local representative of the War Shipping Administration informs the appropriate District Coast Guard officer or officer in charge, Marine Inspection, that a particular vessel or vessels in either of such classes should not be so included.

The transportation of civilian passengers in the national interest on freight vessels in excess of 12 and on passenger vessels in excess of the allowance on their certificates of inspection has been done under the authority of section 501 of the Second War Powers Act, 1942, as extended,

and orders of the Secretary of the Navy, dated 1 October 1942 and 5 June 1945, by the Coast Guard. As the authority for issuing waivers will cease, it is desired that merchant vessels' operations approach regular peacetime practices. To accomplish this there has been issued a Navigation and Vessel Inspection Circular No. 69 which applies to freight vessels and passenger vessels carrying civilian passengers in the national interest. This circular sets forth the policies followed by the Coast Guard and the requirements that vessels have to meet before waivers may be issued to permit the transportation of civilian passengers in the national interest. Included in this circular are requirements for accommodations, fire-fighting equipment, lifesaving equipment, structural reinforcements on Liberty ships, certificates which the vessel shall have, and the length of time for which waivers may be made effective. The instructions given in the circular letter do not affect the authority of the Army or Navy to accept responsibility for a waiver previously denied by the Coast Guard.

Several recent casualties to both passenger-carrying and cargo-carrying Liberty ships indicate that certain Coast Guard recommendations for structural alterations and reinforcements should be met as soon as possible. These requirements have been incorporated into a Navigation and Vessel Inspection Circular No. 70, which is set forth on page 60.

For Liberty ships carrying more than 12 passengers, no certificates of inspection will be issued on and after 1 April 1946, unless the ship has hatch corner reinforcements, deck slots and straps, sheer strake slots and straps or gunwale angles, and serrated or drilled bilge keels. These requirements are minimum standards for structural alterations and reinforcements and any ship having more than the minimum requirements is acceptable to the Coast Guard. For Liberty ships carrying 12 or less passengers, no certificates of inspection will be issued after 1 April 1946, and for Liberty ships carrying no passengers no certificates of inspection will be issued after 30 June 1946, unless the ships have hatch corner reinforcements. sheer strake slots and straps or gunwale angles, and serrated or drilled bilge keels. The effective dates for these requirements in structural alterations are at the time of the ship's annual inspection after the applicable date mentioned above, except that no waivers will be issued on and after 1 April 1946 to permit the carriage of passengers on any Liberty ship, unless the applicable structural reinforcements have been made.

## **GREAT LAKES SHIPPING**

This month ships all over the Great Lakes are beginning to move. The freighters are starting their first peacetime navigation season in 5 years, after a strenuous period of hauling the raw materials of war.

The duration of the shipping season on the Great Lakes is about 8 months at the most. Last year the first vessels went through the locks at Sault Ste. Marie on 25 March, but owners seldom count on getting under way before the first of April. This year there is less feeling of urgency than during the wartime springs. The war emergency is over, and the heavy tonnage of ore brought down the Lakes last fall, coupled with the steel strikes, has created stock piles big enough to feed the mills temporarily. Supplies of grain in storage on the upper Lakes are low now, so grain movements will be limited until the new harvest.

Ice and weather conditions are the major factors in deciding the opening and closing dates of the navigation season. Over a period of many years, I April has been the usual time when the ice has melted and broken up enough to permit safe passage for vessels, and by I December the new ice of early winter has closed in with the ships back in their home ports.

THE GREAT LAKES FLEET, according to recent statistics compiled by the Lake Carriers' Association, consists of 714 vessels, totaling 3,134,688 net tons. This total includes:

354 bulk freighters in iron ore trade (ore, coal, and grain).

48 bulk freight, self-unloading vessels (stone, coal, cement).

139 bulk freight vessels in mixed trades (steel scrap, coal, grain, sand, paper).

22 bulk freight barges in mixed trades (coal, grain, pulpwood).

26 package freighters (package freight and grain).

70 oil tankers.

30 car ferries.

25 passenger steamers.

Of the total number of commercial vessels on the Great Lakes, 483 vessels are of United States registry, amounting to 2,515,053 net tons, and 231 vessels are of Canadian registry, amounting to 619,635 net tons. Carrying capacity of all of the freighters, United States and Canadian, is 4,-408,646 tons.

Major cargoes on the Lakes are iron ore, coal, grain, and limestone. During the war, the freighters carried six-sevenths of the ore used in making American steel, one and one-half times the coal mined by all of our Allies, and one-third of the world's grain supply. The lake carriers haul more than twice the tonnage borne by all the rest of America's merchant fleet combined.

The war years saw an endless line of ships moving down the Lakes—one every 19 minutes was the average through the Detroit River, not counting the vessels from Lake Superior



The freighter activity at Conneaut Harbor showing one ship loading steel, another loading ore, and the third heading out with a cargo of coal. (Photograph, courtesy Lake Carriers' Association.)

swinging down Lake Michigan toward Milwaukee and Chicago. They carried unprecedented amounts of grain and raw materials for the heavy industries, by keeping up a steady, increasing pace, and by loading and unloading in a minimum length of

Last year's cargo figures, which were exceeded only by figures for the full war years, are impressive enough. The major bulk commodities transported were:

	Ne	£	to	ns
ŀ	84,			520

Iron ore	84, 800, 520
Bituminous coal_	53, 670, 837
Anthracite	1, 575, 360
Grain	18, 717, 773
Limestone	16 318 193

The grain movement, the greatest in history, topped previous records by 2,345,675 tons.

A special type of vessel, quie different from the usual ocean-going freight carrier, has been developed to suit the needs of the Great Lakes. The average ore carrier is long and narrow-about 600 feet long with a 60-foot beam and a draft of 22 feet. It can carry 13,000 tons of iron ore, or 13,500 tons of grain (450,000 bushels), or 12,500 tons of coal. In the course of one season, it is likely to carry all three cargoes on different trips.

Although the season is short, it's a high-speed, concentrated shipping period for officers and crew. No time is wasted in port-shore leaves wait for winter, when the ships are laid upand each vessel's speed in loading and unloading is a matter of public record and pride to her men.

The typical ore boat loads in 2 hours and unloads in about 4 hours. The record times, which hold an important place in the history of Great Lakes commerce, are much more spectacular. The test case for ore, made in 1919 in Two Harbors, has never again been equaled. Then the steamer Kerr loaded 2,689 tons in 161/2 minutes.

The record for coal loading was made in 1931 by the William B. Schiller at Conneaut, Ohio, when 11,293 tons, plus 250 pounds of fuel coal, were loaded in 31/2 hours. A limestone record is held by the steamer Conneaut, which loaded 7,145 tons in 38 minutes at Alpena in 1926. A grain record was made by the G. A. Tomlinson, which took on 302,000 bushels of wheat in 1 hour 55 minutes at Fort William in 1932.

In 1944, the average time per ship spent in port on the upper lakes by vessels loading cargoes was 4 hours 44 minutes. This was only slightly more than one-half the average port time of the preceding year because mild weather in the fall eliminated the usual end-of-season delay necessary for steaming frozen ore. The average time per ship spent unloading in the lower lakes was 8 hours 23 minutes in 1944, which was the longest in 15 years, because of the shortage of manpower to operate the ore unloading machines.

Fast unloading of cargoes on the Lakes is due largely to the equipment used. Great Hulett unloaders scoop ore up through the ship's hatches in bites of 17 to 20 tons each, automatically weighing and recording the load as they swing around to dump directly into railroad cars or stock piles. The Huletts are constructed in lines of two- to seven-bucket units.

Many ships on the Lakes are "selfunloaders." This apparatus is carried on deck. The equipment lifts the cargo out of the hold and carries it on a conveyor belt rigged along a 50-foot boom, which can be swung around to deposit the cargo on shore.

Although the freighter is the best known type of vessel prevalent on the Great Lakes, several other types are of major importance. There are 30 car ferries in operation the year around (3 of them Canadian), most of which can carry from 30 to 40 railway cars. There are 25 passenger steamers (12 of them Canadian), altogether about 80 vessels which list their major business as carrying passengers.

Besides the commercial vessels, there are on the Great Lakes and connecting rivers more than 84,000 small motorboats, nearly twice as many as in any other Coast Guard district in this country.

The Lakes have certain navigation problems peculiar to the area. Already mentioned is the ice problem, often a serious hazard in early spring and late fall, and the major factor in determining the length of the navigation season.

Last December a sudden spell of very cold weather caught a good many vessels on their last trip down the Lakes. The cutter Mackinaw rushed down from Cheboygan to answer a distress call from a steamer caught in the ice in the St. Clair River, downbound. By the time the Mackinaw reached Lake Erie, she had four vessels collected in convoy, and at the end of 3 days the icebreaker had broken out seven ships.

Crucial areas for ice trouble are usually the St. Clair and Detroit Rivers, the Straits of Mackinac and the St. Mary's River. Cutters on the Lakes also get frequent calls from vessels icebound in or near their own harbors. Lake Michigan fishing tugs, many of which operate nearly all winter, are often caught in ice by a sudden drop in temperature or a shift in wind which pushes a drifting ice pack around them. In February of this year, the car ferries Sainte Marie and Chief Wawatam were frozen fast on their run across the Straits. They are both powerful icebreakers themselves and were chartered by the Coast Guard before the Mackinaw was built.

Fog is a dangerous and expensive impediment to navigation on the Lakes. It slows traffic, often stops it completely, in the major bottlenecks. Certain restricted channels in the St. Mary's River and the Detroit River are so narrow that vessels are not permitted to drop anchor because of almost inevitable collision with other vessels, so they must proceed cautiously to the nearest widening of the channel to sit out the low visibility period. At best, fog creates a serious traffic jam at key points and delays the transport of valuable cargoes.

Radar research, being conducted by the Coast Guard and Lake carriers cooperatively, is expected to result in alleviating the fog problem. Some radar sets are now being used experimentally on lake vessels, as well as on the Mackinaw.

Up near the ore country, in northern Lake Michigan and in Lake Superior, magnetic compasses are thrown off true direction, with the result that it takes a skillful, experienced pilot to avoid going aground when visibility is low. Many of the larger vessels beat this hazard with gyrocompasses.

Shallow water in and near many of the major shipping channels requires the vessels' officers to be on the alert. The western end of Lake Erie, the river stretch from Lake Erie to Lake Huron, the Straits of Mackinac and the St. Mary's River, again, are the critical areas. Shifting currents in the St. Clair River add to the complications of a heavily laden freighter with slight clearance.

Traffic in the Upper and Lower St. Mary's River, approaches to the locks at Sault Ste. Marie, is controlled by a Coast Guard river patrol. A network of lookout stations and an 83-foot patrol boat from the Operating Base at the "Soo" keep track of the exact location of all vessels as they pass through the area. Through those locks pass more tonnage than through all the other great canals of the world combined. For the season of 1942, 13,434 vessel passages were tallied there; in the season of 1944, there were 11,782 vessel passages.

To assist the safe movement of Great Lakes commerce and numerous small pleasure and business craft on the Lakes, the Coast Guard maintains and operates over 2,500 aids to navigation. Of these, 1,700 are buoys, which must be put out every spring

and taken in at the close of the season in late fall. The list of aids includes 128 lighthouses, 59 radio beacons, and 132 power fog signals.

Work of the Great Lakes Fleet is expected to be somewhat lighter this year, now that the strain of the war years, with the insatiable demand for armament materials, is over. But this spring vessels are being repaired and improved, dock owners are installing new unloaders, and even longer ships are being planned for future commerce on the Lakes.

#### NUMBERED AND UNDOCUMENTED VESSELS

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

Coast Guard district	Customs port	Tot
1 (Boston)	(4) Boston 12, 160 (1) Portland, Maine 9, 230 (2) St. Albans 2, 544 (5) Providence 3, 337	
3 (New York)	(10) New York 37, 581 (6) Bridgeport 7, 047	27, 1
4 (Philadelphia)	(11) Philadelphia	44, 6
5 (Norfolk)	(14) Norfolk. 18, 138 (13) Baltimore. 19, 097	18, 1
6 (Charleston)	(16) Charleston     1,554       (15) Wilmington, N. C     2,337       (17) Savannah     2,560	37, 2
7 (Miami)	(18) Tampa (part)	6, 4
& (New Orleans)	(20) New Orleans.     15,860       (18) Tampa (part)     902       (19) Mobile     5,827       (21) Port Arthur     3,468       (22) Galveston     8,323       (23) Laredo     1,647       (24) El Paso     6       (43) Memphis (part)     77	16, 4
9 (Cleveland)	(41) Cleveland         13,098           (7) Ogdensburg         6,332           (8) Rochester         8,264           (9) Buffalo         7,930           (36) Duluth         3,750           (37) Milwaukee         12,241           (38) Detroit         25,267           (39) Chicago         7,256	36, 1
9 (St. Louis)	(45) St. Louis     18,574       (12) Pitrsburgh     3,803       (34) Pembina     120       (35) Minneapolis     8,488       (40) Indianapolis     5,030       (42) Louisvifle     3,617       (43) Memphis (part)     8,288       (44) Vacant (Des Moines)     197       (46) Omaha (part)     782	84, 1
0 (San Juan)	(49) San Juan 239 (51) St. Thomas 69	48, 8
I (Long Beach)	(27) Los Angeles 6,076 (25) San Diego 1,228 (26) Nogales 52	3
2 (San Francisco)	(28) San Francisco	7,3
3 (Seattle)	(30) Seattle 27, 577 (29) Portland, Oreg 9, 071 (33) Great Falls 894 (46) Omaha (part) 2	18, 2
4 (Honolulu)	(32) Honolulu 1,929	37, 5
7 (Ketchikan)	(31) Juneau	1,0
Grand total		390, 4

#### Waiver Canceled Permitting Crew Accommodations in Hospital Spaces

The general waiver of section 6 of the act of 4 March 1915, dated 3 December 1942, has been canceled. This waiver permitted the accommodation of persons in spaces allocated for hospital purposes on vessels engaged in business connected with the conduct of the war except in the event that confinement or isolation of sick and injured personnel became necessary when such spaces as might be required would then be made available to such personnel.

The general waiver of 3 December 1942 was issued in order that vessels would not be delayed by reconstructing the crew accommodations on vessels to accommodate the additional personnel required, such as gun crews, military liaison groups, etc. Due to the successful conclusion of the war, the need for additional personnel has ceased in most cases and the hospital spaces are no longer needed for such purposes. Therefore, the waiver has been accordingly rescinded.

In any case where the hospital spaces are needed to accommodate the crew of a vessel, an individual waiver permitting this may be granted under the provisions of Navigation and Vessel Inspection Circular No. 37 by the United States Coast Guard District Commander or his designated representative.

#### Changes in Ownership of Undocumented Vessels

In an effort to simplify the procedure affecting the changes in ownership of undocumented vessels and to speed up the issuance of certificates of award of numbers where changes of ownership occur, a revision has been made of Form NAVCG 1513, the certificate of award of number to an undocumented vessel, by incorporating on this form an application for a certificate of award of number, which takes the place of Form NAVCG 1512, the present application.

Under the new procedure, when the bill of sale on the reverse side of Form NAVCG 1513 is executed by the seller of a vessel and delivered to the purchaser, the purchaser certifies that he has purchased the vessel described in the certificate and that the description of the vessel indicated on the face of the certificate is true and correct, with any exceptions which he notes in the space provided. The certificate of award of number (Form 1513) is then forwarded to the commander of the Coast Guard district in which the vessel is owned within 10 days of the date

of purchase, and constitutes a reporting of the change in ownership as required by Regulation 46 C. F. R. 29.8 (g), and section 3 of the act of 7 June 1918, as amended (46 U. S. C. 288). Upon receipt of the certificate, the district commander notes the change in ownership of the vessel and the application for a new certificate which has been executed by the purchaser, and is immediately in possession of all necessary evidence as to ownership so that he can at once issue a certificate of award of number in the name of the new owner.

By the use of this form, it is no longer necessary for the purchaser of a vessel to complete Form NAVCG 1512 upon acquiring such a vessel, except in the case of a new vessel or in the case of a vessel which has never been previously numbered. In such cases, the use of Form NAVCG 1512, the application card, is required as at present.

By incorporating on the certificate of award itself the application for a certificate of award of number, it seems evident that the time now required to complete such transactions will be reduced by at least 50 percent, and there should be little delay for the new owner of a numbered vessel in receiving the new certificate.

It is anticipated that the printing of the revised form will be completed sometime in April, and distributed to field offices where it will then be available for use.

#### PASSENGERS CARRIED ILLEGALLY

Some United States vessels have been carrying passengers without being properly authorized to do so. Upon questioning, the masters of the vessels concerned stated they were acting under orders from naval officers, shipping agents, etc. Some of the vessels having passengers on board without proper permission were involved in casualties, although no loss of life resulted.

Under present conditions a passenger vessel or a cargo vessel may lawfully transport passengers under the following conditions:

(1) In compliance with the provisions of her certificate of inspection or an amendment thereto issued by the United States Coast Guard.

(2) By authority of a waiver issued by the United States Coast Guard under the provisions of the Second War Powers Act.

(3) By a waiver issued by the United States Army or Navy under the Second War Powers Act after a request for a waiver has been denied by the Coast Guard.

These provisions apply to United States vessels when in the United States as well as in foreign ports.

It is to be distinctly understood that both passenger vessels and freight vessels of the United States do not have authority to carry persons in addition to the crew or passengers unless they are authorized to do so by certificates of inspection or by waivers. The attention of masters, owners, and agents of United States merchant vessels is called to the provisions of section 4465 of the Revised Statutes (46 U. S. C. 452), which

makes it unlawful to carry passengers in excess of the number allowed.

#### MOTORBOAT REGULATIONS

A new edition of the Motorboat Regulations has just been prepared and will be available in the field offices during the latter part of May 1946.

In this publication are the regulations applicable to motorboats and certain motor vessels in accordance with the Motorboat Act of 25 April 1940, as well as the regulations for numbering undocumented vessels as required by the act of 7 June 1918. An appendix has been added which contains the numbering of undocumented vessels' statute, Motorboat Act, Recommended Practices for the Care and Safe Operation of Motorcraft, sample examination questions for operator's license, United States Coast Guard District Offices, and an abbreviated index.

Motorboat owners, operators, builders, and other persons affected by the motorboat laws and regulations should familiarize themselves with the laws and regulations as set forth in this pamphlet.

## New Titles for Coast Guard Disrticts

On 1 April the designations of Coast Guard districts and of their commanders were changed. While operating as a part of the Navy, the districts corresponded with the naval districts in which they were located. The Coast Guard officer in command was called, for example, the District Coast Guard officer, First Naval District. Now he is designated as the commander, First Coast Guard District.

Tabulated below are the new designations and the locations of the district headquarters, as well as the designations formerly used.

New designation	District headquarters	Former usage
Commander, First Coast Guard District Commander, Second Coast Guard District Commander, Fourth Coast Guard District Commander, Fourth Coast Guard District Commander, Fifth Coast Guard District Commander, Sixth Coast Guard District Commander, Seventh Coast Guard District Commander, Seventh Coast Guard District Commander, Ninth Coast Guard District Commander, Ninth Coast Guard District Commander, Tenth Coast Guard District Commander, Tenth Coast Guard District Commander, Twelfth Coast Guard District Commander, Twelfth Coast Guard District Commander, Twelfth Coast Guard District Commander, Fourteenth Coast Guard District Commander, Fourteenth Coast Guard District Commander, Fourteenth Coast Guard District Commander, Seventeenth Coast Guard District	Boston, Mass St. Louis, Mo New York, N. Y. Philadelphia, Pa Norfolk, Va Charleston, S. C. Miami, Fla New Orleans, La Cleveland, Ohio. San Juan, P. R. Long Beach, Callf San Francisco, Callf Seattle, Wash Homolniu, T. H Ketchikan, Alaska	DCGO, 1ND. DCGO, 9ND (St. Louis), DCGO, 9ND, DCGO, 3ND. DCGO, 5ND. DCGO, 5ND. DCGO, 7ND. DCGO, 7ND. DCGO, 9ND (Cleveland) DCGO, 10ND. DCGO, 11ND. DCGO, 12ND. DCGO, 13ND. DCGO, 13ND. DCGO, 14ND. DCGO, 14ND. DCGO, 14ND.

## LESSONS FROM CASUALTIES

### **Explosions on Motorboats**

From the pier of a resort on the shore of Lake Michigan a jolly group was starting out on a speedboat run around the harbor one July afternoon. The boat was pushed away from the pier and drifted a minute while the operator started the engine.

The starter took hold, then there was a blinding flash and explosion, followed by fire. As a result, three passengers were severely burned, three jumped overboard, and the rest had to be precariously transferred to another craft nearby. This motorboat, built before 25 April 1940, met the existing regulations for its type and age, and the fire was promptly extin-

guished by means of the required firefighting equipment, but the accident need not have happened if recommended practices for the safe operation of motorcraft had been followed.

Six days later, and a thousand miles away, a motorboat carrying a licensed operator and 2 crew members in addition to the 15 passengers out for a day's fishing trip from a New Jersey port experienced a somewhat similar accident, with even more serious results. The motor had been stopped and started several times during the trip, and an odor of gasoline had been detected by the operator not long before the accident. He had searched for the source and had wiped up a suspicious damp spot, throwing the rag overboard. A few minutes later, when the engine was again started, a terrific explosion ensued. Fifteen of the eighteen persons aboard were hospitalized as a result, and considerable damage was done to the craft itself by fire. This boat was violating no mandatory regulations, and the conduct of the crew was above reproach.

Yet, in each of these cases, there was a flagrant disregard for recommended practices for the care and safe operation of motorcraft while still keeping within the letter of the law. The operators failed to keep in mind that petroleum vapors are heavier than air and consequently accumulate in the lowest part of spaces or compartments containing them, where they are not readily detected. Accumulated petroleum vapors may lie dormant in the lower part of an engine compartment for a considerable length of time without mishap. However, should a source of vapor ignition be introduced, such as an electric spark, a lighted cigarette, an open flame, etc., a disastrous ex-plosion may result similar to the explosions described herein.

To be safe, it is essential that all spaces or compartments which may have gasoline vapors in them be properly ventilated before attempting to start any type of motors within such spaces. Gasoline vapors are dangerous. A half pint of gasoline which has vaporized in a closed space or compartment may create a potential explosive power of 5 pounds of dynamite. To overcome the hazard of explosion, it is imperative that action be taken to prevent the accumulation of explosive mixtures, first by keeping gasoline or other petroleum products from spilling and vaporizing, and second by providing adequate means for ventilating these spaces or compartments. The next step is to eliminate all sources of vapor ignition in spaces which may contain explosive mixtures. By observing recommended safety practices, dangerous explosions can be prevented.

Although specifications concerning adequate ventilation of the various compartments are mandatory only on vessels constructed or decked over after 24 April 1940, the owners and operators of older craft engaged in carrying passengers should examine these craft themselves to see that they con-

form not only to Motorcraft Regulations but also with the recommended practices appended to these regulations. The fact that a vessel by the date of its construction is exempted from complying with certain requirements does not absolve the owners from responsibility for the safety of those whom they engage to transport, or from the observance of recognized safety precautions. The Recommended Practices for the Care and Safe Operation of Motorcraft are appended to Motorboat Regulations for the guidance of such owners in checking their safety equipment. It is strongly recommended that owners and operators of motorboats study the regulations and recommended practices carefully in order that accidents such as those described above may be reduced to a minimum.

#### Low Water and Soot Fire

Our modern merchant vessels are fine ships; their boilers and complex machinery, along with being expensive equipment, permit more speed and cruising radius than ever before. Engine room personnel engaged in the operation of this highly modern equipment must, therefore, be better versed in the operational fundamentals of modern propulsive machinery than was necessary prior to the advent of such equipment. In order to assure smooth and efficient functioning of modern machinery and boilers, it is mandatory that engineering personnel combine technical knowledge with practical experience to become skillful in the operation of this highly modernized equipment.

This article proposes to illustrate the important and influential part engineering personnel play in the efficient operation of any merchant vessel, by setting forth the details surrounding the complete destruction of a boiler on a Victory type vessel which can be directly traced to a lack of thorough familiarity and intimate acquaintance with the operating principles involved in this casualty. The picture on the back cover shows a portion of this damage.

This particular vessel had just completed a long voyage and, while moored at a pier of a large shipyard, was undergoing some minor repairs. Upon the arrival at the shipyard, the starboard boiler was "secured" in order that it could be cleaned in preparation for boiler inspection. On the following day, the engineering personnel worked in the engine room effecting necessary repairs, and at 5 p. m. the night engineer arrived and took over the night duties. Everything went along satisfactorily until about 9 p. m. when it was reported to

#### **Back Cover Picture**

The remains of the generating tubes in a boiler on board a Victory ship after a soot fire. The soot and carbon on the tubes became impregnated by oil in a hasty attempt to raise steam and caught on fire at a time when little or no water was in the tubes. The boiler tubes soon became a mass of molten metal. The boiler had to be replaced and this "error in performance" was costly-not only in cost to replace the boiler, but in time the ship had to be laid up for repairs. The recommendations for preventing this type of casualty is in the article. Low Water and Soot Fire.

the night engineer that the starboard boiler was flooding and water was running out of the vent valves on top of the boiler drum. The night engineer immediately found that the feed valve was only partly closed on the supposedly "secured" boiler, and, some difficulty was experienced in closing this valve; however, he was able to close it sufficiently to stop the flow of water. Thereafter things went along smoothly until 3 a. m., at which time the oiler notified the night engineer that the water was low in the deaerating heater and also that the vacuum on the auxiliary condenser was low. The night engineer then started to recirculate water through the condenser and take extra feed. However, the water level in the deaerating heater remained low, and, at 4 a. m. the night engineer sent the oiler to call the first assistant engineer to the engine room. The first assistant immediately came to the engine room and proceeded to help the night engineer put the plant back into normal operation. At about this time, the night engineer checked the vacuum and found it to be approximately 10 inches. This indicated to the first assistant engineer that the plant was returning to normal operation, and at approximately 4:35 a. m. the second assistant engineer was sent for to take over, and help the night engineer with the plant. The first assistant engineer then returned to his room and went to bed as he had been up the entire preceding day attending to necessary repair work.

Shortly after the second assistant arrived in the engine room, the vacuum on the auxiliary condenser was lost entirely and the generator kicked out, blacking out the entire ship. At the same time, the feed pump and fuel-oil pump stopped, and the steam

pressure on the port boiler was lost. The night engineer and the second assistant then put the Diesel-driven emergency generator into operation and proceeded to start up the plant by use of the cold-starting arrangement. At this time, both of these men checked the water level in the water glass and stated that it was full of water. Two fires were lighted in the port boiler, using Diesel oil and the hand pump to supply the required pressure. After the fires had been lit for approximately 20 minutes, and the steam pressure raised to 40 pounds per square inch, an explosion was suddenly heard inside the boiler, accompanied by a hissing sound. The fires were "secured" and it was then discovered that there was a soot fire in the tube banks. The second assistant then called the chief engineer at his home and notified him of the trouble. The chief engineer arrived aboard at approximately 10 a. m. and, after inspection of the plant, found the boiler to be too hot to approach closely as the soot fire was still burning and continued to burn until approximately 7 Subsequent examination revealed that the boiler was completely destroyed.

In this case it is evident that the engine room personnel acted in a manner totally contrary to good-engineering practice. In the first place, they failed to "secure" properly the starboard boiler, as was evidenced by the discovery that one of the feed water valves on this boiler was left slightly open. This permitted the feed water to be discharged into the idle boiler. Second, after losing steam on the port boiler, they failed to make certain as to whether or not the boiler contained sufficient water before proceeding to "light off" the fires preparatory to raising steam. They "assumed" the water glass to be full. This action alone represents carelessness in its most glaring form. If the engineers had only ascertained that the boiler

was adequately filled with water by the usual checking methods long practiced by experienced engineers, and had then continued to maintain sufficient water in the boiler, the complete destruction of this vital steam generator would never have resulted.

Heavy deposits of soot and carbon on the tubes is a sign of incomplete combustion. They can be caused by:

(a) Incorrect oil temperatures and pressure.

(b) Incorrect adjustment of atomizer and the use of atomizer tips or sprayer plates of improper size.

(c) The continuous use of dirty burners.

(d) Excess or insufficient air for proper combustion.

The problems of combustion control are many and varied and therefore the subject is lengthy and cannot be covered completely in this article. However, assuming that the boiler is correctly designed as regards size and shape of furnace, arrangement of the tube banks, size and form of the uptakes, and location of the burners, correct combustion is then largely a matter of proper operation. Heavy deposits of hard carbon are sometimes caused by excess air entering around the cone of oil, thereby cooling the flame down so that combustion is not obtained until the spray has passed some distance back in the furnace. As a result, the particles of oil forming the outer surface of the oil cone strike the furnace bottom, side walls, or tubes near the front, thus being cooled below the combustion temperature. The heat causes a break-down of the hydrocarbons and carbon residue adheres to the surface as a solid mass. Since this carbonization is frequently experienced with light grades of oil, and, since a heavy soot deposit readily absorbs moisture, in this case, the crew, in their hasty attempt to raise steam evidently failed to provide proper atomization for the light grade

Diesel oil used and incomplete combustion resulted. Actually unburnt particles of light oil were forced into the tube banks, impregnated the soot, and also adhered to the carbon deposits on the tubes, furnace sides, and bottom. The climax was the complete destruction of the boiler.

Proper maintenance of the material condition of boilers and their steaming efficiency depends upon frequent and thorough removal of soot. Accumulations of soot, especially in closely spaced tubes, soon pack down in a mass which is beyond the capacity of the soot blowers to remove entirely and, when this condition is permitted, this accumulation can only be removed by hand cleaning. Therefore, in order to maintain the fire side of boilers in proper condition, the frequent and regular use of properly installed and maintained soot blowers is necessary. Particular care should be taken in the adjustment of the soot blowers to take care of change in relative position between the tubes and wall in a horizontal direction, as the full effectiveness of the soot blower can be realized only when the steam jets are properly lined up with the tubes. One of the principal functions of the engineer is the personal instruction of the operating force in the proper operation and maintenance of soot blowers. This will tend to correct any faulty practice on the part of the operators.

In conclusion, casualties such as this one are the fault of the operating personnel. Prevention of this type of casualty can come only from increased vigilance on the part of those in immediate charge of the engine room, and by implanting in the minds of the engineering personnel aboard these vessels a full realization of their duties and personal responsibilities. The serious consequences likely to result from "errors" in performance should be brought to their attention.

## **APPENDIX**

## Amendments to Regulations

TITLE 46-SHIPPING

Chapter I—Coast Guard: Inspection and Navigation

All the changes in the regulations are now in effect. The exact effective date may be obtained from the Federal Register in which the amendment was published.

Subchapter C-Motorboats, and Certain Vessels Propelled by Machinery Other Than by Steam More Than 65 Feet in Length PART 29-Numbering of Undocumented Vessels

Section 29.8 (a) is amended to read as follows:

§ 29.8 Procedure relating to numbering of motorboats. (a) Application for a certificate of award of number will be made by the owner to the District Coast Guard officer having jurisdiction over the area in which the vessel is owned and a record thereof kept in the office of the

District Coast Guard officer of the district in which the owner or managing owner resides (11 F.R. 3206, 27 March 1946).

Subchapter K-Seamen

PART 138—RULES AND REGULATIONS FOR ISSUANCE OF CERTIFICATES AND CON-TINUOUS DISCHARGE BOOKS

Section 138.3 (e) entitled "Wartime regulations; able seamen" shall remain in effect indefinitely or until rescinded by proper authority and the date of May 2, 1946, for effecting the rescission of section 138.3 (e) is canceled.

Section 138.5 (g) entitled "Wartime regulations: qualified member of the engine department" shall remain in effect indefinitely or until rescinded by proper authority and the date of May 2, 1946, for effecting the rescission of section 138 5 (g) is canceled.

Subchapter O-Regulations Applicable to Cer-tain Vessels and Shipping During Emergency

Part 155-Licensed Officers and Certificated Men: Regulations During Emergency shall remain in effect indefinitely or until rescinded by proper authority, and the date of May 2, 1946, for effecting the rescission of Part 155 is canceled.

#### Waiver

Appendix A-Waivers of Navigation and Vessel Inspection Laws and Regulations

Towing Vessels Towing Tank Barges ON GULF INTRA-COASTAL WATERWAY; CANCELLATION OF WAIVER

By virtue of the authority vested in me by the order of the Acting Secretary of the Navy, dated October 1, 1942 (7 F. R. 7979), as amended by order dated June 5, 1945 (10 F. R. 6848), and continued in effect by order dated January 1, 1946 (11 F. R. 185). I hereby cancel, effective on publication in the Federal Register. the waiver dated November 15, 1944 (9 F. R. 13720), which waived compliance with certain provisions of 46 C. F. R. 31.4-2 as applied to towing vessels towing tank barges on the Gulf Intra-Coastal Waterway, and inland waters connected therewith lying within the limits of the Seventh and Eighth Naval Districts.

Dated: March 26, 1946. (11 F. R. 3206, 27 March 1946.)

## Navigation and Vessel Inspection Circular No. 67

Routine Boarding of U. S. Merchant Vessels by Coast Guard Merchant Marine Hearing Unit Examining Officers; Discontinuance of

> UNITED STATES COAST GUARD WASHINGTON 25, D. C.

> > 13 March 1946.

1. In the past it has been the policy of Merchant Marine Hearing Units

and Merchant Marine Details to have their examining officers board all United States Merchant vessels immediately upon their arrival in ports where such Hearing Units or Details are in operation. It was the duty of such boarding officers to receive complaints existing with respect to the conduct of the ship's personnel. Any such complaints were immediately investigated by the examining officer in order to determine whether he should institute proceedings under R. S. 4450, as amended, against the license or certificate held by anyone of the ship's merchant personnel who his investigation indicated was guilty of misconduct, negligence, inattention to duty, or incompetence while serving aboard the vessel. This procedure was necessary during the war to avoid any delay in the sailing of vessels.

2. The Merchant Marine Hearing Units will continue to function as they have in the past, except that in the future, vessels will not be boarded by Coast Guard examining officers in the routine manner set forth above, other than in those cases where the Merchant Marine Hearing Unit has received advance information, prior to the vessel's arrival in port, indicating that a shipboard investigation should be conducted. In such cases the ship will be boarded by an examining offi-

cer immediately on arrival.

3. Examining officers of Coast Guard Merchant Marine Hearing Units will continue to examine into cases where specific requests for investigation of complaints are made. Immediately upon receipt of any such request by a Merchant Marine Hearing Unit, an examining officer will be dispatched to the vessel to conduct an investigation of the complaint in order to determine whether, in his opinion, action under R. S. 4450 should be instituted against the licenses or certificates of service held by personnel complained against. The complaints may be made to any merchant marine inspection office.

4. In order that effective service may be rendered under this system, it is necessary that those who wish to request an investigation do so with promptness. It is advisable that a Merchant Marine Hearing Unit be notified of any complaints at least twenty-four hours prior to the vessel's final pay-off. It will be appreciated that an examining officer cannot conduct a thorough investigation into the complaints unless all material witnesses, both those for the complainant and those for the party complained against, are available for personal interview. If personnel aboard the vessel who are material witnesses have been paid off the ship and departed, it is sometimes impossible to complete thorough investigation. Thus. timely notification as to complaints is required to assure proper investigation.

5. It is the wholehearted desire and earnest belief of the United States Coast Guard that continued efficient service will be rendered the Merchant Marine under this new system.

> (Signed) J. F. FARLEY, Admiral, U. S. Coast Guard, Commandant.

## No. 68

Conditional Waiver of Manning Requirements; Amendment to Navigation and Vessel Inspection Circular No. 31

UNITED STATES COAST GUARD

WASHINGTON 25, D. C.

March 26, 1946.

1. In view of the questions raised with respect to the intent and scope of the amendment, dated 4 January 1946 (11 F. R. 300), to the Conditional Waiver of Manning Requirements, dated 8 April 1943 (8 F. R. 4736), as amended by an order, dated 30 August 1943 (10 F. R. 11251), the following interpretative statements are furnished for the information and guidance of all concerned:

(a) The amendment of 4 January 1946 refers to two classes of vessels; namely, (1) merchant cargo and tank vessels engaged in business connected with the conduct of the war, and (2) merchant cargo and tank vessels engaged in trade or commerce deemed necessary in the national interest. The phrase "conduct of the war" is defined in the amendment as comprehending the conduct of the Government's military and civilian programs in the readjustments to posthostilities conditions in the United States, its possessions or territories, and in theaters of war, including disposition of personnel and matériel, govern-ment of occupied territory, and rehabilitation of liberated areas.

(b) This definition of "conduct of the war" covers a broad field. It takes into account the abnormal conditions resulting directly and indirectly from the conduct of the war to which the present shortage of personnel and matériel is attributable. It rests upon the reasoning that the process of readjustment and conversion of the economy of the nation from a war to a normal peacetime basis is as much a part of the conduct of the war as the opposite process of readjustment and conversion in the preparation for and the prosecution

of actual hostilities.

(c) Upon the recommendation of the War Shipping Administration, the Coast Guard has accepted the following finding for vessels operating in business connected with the conduct of the war or deemed necessary in the national interest:

All merchant vessels registered, or enrolled and licensed, under the laws of the United States shall be considered to be engaged in business connected with the conduct of the war or deemed necessary in the national interest until June 30, 1946, unless a local representative of War Shipping Administration informs the appropriate District Coast Guard officer or officer in charge, Marine Inspection, that a particular vessel or vessels in either of such classes should not be so included.

2. Attention is called to the fact that the Conditional Waiver of Manning Requirements, as amended 4 January 1946, does not apply to crew deficiencies at the beginning of the voyage. It has application only to permit licensed officers and rated seamen to serve in a higher capacity than their respective licenses or certificates would authorize. (See Navigation and Vessel Inspection Circular No. 34.) Attention also is invited to the fact that this waiver is limited to merchant cargo and tank vessels. The waivers and findings with respect to passenger vessels are governed by the provisions of Navigation and Vessel Inspection Circular No. 37, as amended.

3. The Navigation and Vessel Inspection Circular No. 31 is amended by substituting the amended waiver order which is attached. The Conditional Waiver of Manning Requirements, as amended, sets forth a procedure by which the navigation and vessel inspection laws and regulations may be waived in order to prevent delays in sailing. This waiver does not amend or modify the procedures for issuing waivers under the order of 1 July 1943, as amended (8 F. R. 9164, 10 F. R. 582, 8243, 12216), as set forth in Navigation and Vessel Inspection Circular No. 37.

4. Under the procedures set forth in Navigation and Vessel Inspection Circular No. 37, the District Coast Guard officer or his designated representative or the representative of the Commandant, as the case may be, may invoke the Waiver of Compliance with Navigation and Vessel Inspection Laws and Regulations in the Order of the Acting Secretary of the Navy. dated 1 October 1942, as amended by the Order of the Secretary of the Navy, dated 5 June 1945 (10 F. R. 6848), upon such terms and conditions as may be specified in the individual waiver. Therefore, insofar as manning is concerned two alternative methods of bringing about relaxation of the requirements are available in certain cases. Where the procedure under the Conditional Waiver of Manning Requirements is inapplicable, it is possible to use the method provided by Navigation and Vessel Inspection Circular No. 37.

> (Signed) Merlin O'Neill, Rear Admiral, U. S. Coast Guard, Acting Commandant.

#### TITLE 46-SHIPPING

#### Chapter I—Coast Guard: Inspection and Navigation Conditional Waiver of Manning Requirements

Having determined upon investigation that there is a shortage of experienced personnel in the merchant marine industry due to the increase of the number of ships required to be manned and the demands of other industries and the Armed Services upon the available manpower of the country, and that as a result of such shortage the masters of merchant cargo vessels and tank vessels engaged in business connected with the conduct of the war or in any trade or commerce deemed necessary in the national interest, have been unable to obtain the number of experienced personnel required for their vessels by or pursuant to law or regulation; therefore, to avoid delays in the sailings of such merchant vessels, to insure that such vessels have on board the best-qualified crews available to provide a simplified and uniform procedure for accomplishing the foregoing and otherwise to further the conduct of the war. I find in the case of merchant cargo vessels and tank vessels engaged in business connected with the conduct of the war, or in any trade or commerce deemed necessary in the national interest, that the waiver of the navigation and vessel inspection laws and regulations is necessary in the conduct of the war to the extent and in the manner and upon the terms and conditions set forth in the following paragraphs. The phrase "conduct of the war" as used herein, comprehends the conduct of the Government's military and civilian programs in the readjustments to post-hostilities conditions in the United States, its possessions or territories, and in theaters of war, including disposition of personnel and matériel, government of occupied territory, and rehabilitation of liberated

Extent, terms, and conditions of waivers.—The master of any cargo vessel or tank vessel engaged in business connected with the conduct of the war or any trade or commerce deemed necessary in the public interest may if such action is necessary to

permit such vessel to sail without delay substitute for any licensed officer or rated seaman required as part of the complement of such vessel by or pursuant to law or regulation, any licensed officer of lower rank, who is an American citizen, or any certificated seaman of lower rating: Provided, That (1) the deficiency in complement is not caused by the consent, fault or collusion of the master, owner or any other person interested in the vessel; (2) the master, over a reasonable period prior to the time fixed for the signing on of his crew, makes every reasonable effort to obtain such required licensed officer or rated seaman; (3) the person substituted for such required licensed officer or rated seaman is, in the opinion of the master, the best qualified substitute therefor that the master could obtain; (4) the master is of the opinion that the vessel is sufficiently manned for the contemplated voyage; and (5) the master, prior to departure prepares, executes, certifies, and files with, or sends to the Shipping Commissioner before whom the crew was signed on or, in cases when the crew is not required to be signed on before a Shipping Commissioner, to the nearest Merchant Marine inspector in charge, two copies of a report of each substitution made. One copy of such report shall also be submitted to the collector of customs at the time when application for clearance is made. In making such report the following form shall be used:

## UNITED STATES COAST GUARD CREW DEFICIENCY REPORT

(Place)
(Date)
Name of vessel

Owner or operator\_\_\_\_\_

This is to report that in order to permit my vessel to sail without delay on a voyage beginning on or about this date, it was necessary for me to make substitutions in the required complement for my vessel as set forth below. I certify that the deficiency was not caused by my fault or collusion or, to the best of my knowledge, by the fault or collusion of the owner or of any other person interested in the vessel; that prior to the signing on of my crew I made every reasonable effort to secure the complement of licensed officers and rated men required by or pursuant to law for this vessel and was unsuccessful; that the substitutes listed below are the best qualified men I could obtain for the positions which they occupy; and, that in my opinion my vessel is sufficiently manned for this voyage.

Crew de- ficiencies	Substitutes											
Rank or rating	Name	Rank or rating	License or certi- ficate No.									
	******		-									
********		***********										

(Master's signature)

Penalties.-The failure of the master of any vessel departing with a deficiency in the required complement therefor to execute and submit the reports required hereunder, or a false certification in any such report by such master shall be considered misconduct within the meaning of R. S. 4450, as amended, 46 U.S.C. 239, and shall constitute grounds for suspension or revocation of the license of such master; and shall subject him and the owners to all other penalties provided by law. No penalty shall be imposed as a consequence of any substitution made in accordance with this regulation.

Authority for waiver.-This conditional waiver is made and is effective pursuant to and under authority of section 501 of the Second War Powers Act (sec. 501, 56 Stat. 180, 50 appendix U. S. C., Sup. IV, 635), as extended, and the order of the Acting Secretary of the Navy dated 1 October 1942 (7 F. R. 7979), as amended by order of the Secretary of the Navy dated June 5, 1945 (10 F. R. 6848), as continued by Executive Order 9666, dated December 28, 1945 (11 F. R. 1), and Coast Guard General Order 1-46 of the Secretary of the Treasury, dated January 1, 1946 (11 F. R. 185).

This waiver is inapplicable to all ocean and coastwise passenger vessels and vessels carrying troops.

(Conditional waiver of manning requirements order, dated April 8, 1943, as amended August 30, 1945, and January 4, 1946 (8 F. R. 4736, 10 F. R. 11251, 11 F. R. 300).)

## No. 69

#### Transportation of Civilian Passengers in the National Interest

UNITED STATES COAST GUARD WASHINGTON 25, D. C.

26 March 1946.

1. Under the authority of section 501 of the Second War Powers Act, 1942, as extended, and orders of the Secretary of the Navy dated 1 October 1942 and 5 June 1945, the Coast Guard has authorized waivers of the shipping laws to permit freight vessels to carry passengers in excess of 12 and

for passenger vessels to carry a number in excess of the allowance on their certificates of inspection when such transportation is necessary in the national interest.

 As the authority for issuing waivers will cease eventually, it is desired that merchant vessels' operations approach regular peacetime practices.

In an effort to accomplish the above, the following instructions will be adhered to when issuing waivers to carry civilian passengers in the future.

#### A. Application

Application for permission to carry passengers in the national interest shall be made on Form NCG 2633 by owner or agent of the vessel whose responsibility it is to determine in each case that the transportation of any passengers carried under a waiver is necessary in the national interest.

#### B. Certificates

In all cases where applications are made in United States ports for waivers of the shipping laws to permit the carriage of civilian passengers in excess of 12 on freight ships, or in excess of the regular allowance on passenger vessels, the vessels shall be in possession of a valid certificate of inspection, load line certificate, and either a safety radiotelegraphy certificate or a safety certificate. In foreign ports such waivers may be issued to vessels whose certificates of inspection have expired if an actual examination of each such vessel can be made by qualified Coast Guard officers to determine that it is suitable in all respects and seaworthy for the voyage intended.

#### C. Examination

An examination of the vessel is contemplated in each case before a waiver is issued.

#### D. Accommodations

Determination as to the suitability of the accommodations for the transportation of such civilian passengers shall be the responsibility of the master of the vessel and Coast Guard officer issuing the waiver. Each waiver order will specify in detail the location and suitability of accommodations to be occupied by the passengers.

#### E. Fire-fighting equipment

Fire-fighting equipment shall be in full compliance with the laws, rules, and regulations applicable to the class of vessel.

#### F. Lifesaving equipment

(i) Passenger vessels.—(a) When application is made, according to the provisions of Navigation and Vessel Inspection Circular No. 37, to permit the carriage of military personnel, together with civilian passengers, who

are traveling under military urgency, or in the national interest, and vouched for upon application Form NAVCG 2633 by responsible Army or Navy officer, the combined capacity of lifeboats, life rafts, and life floats must be sufficient to accommodate the total number of persons to be carried (military personnel, civilians and crew) plus 50 percent.

(b) When members of the armed forces only are carried, the same provisions as set forth in paragraph (a)

are applicable.

(c) When civilians are carried, and their transportation has not been certified by a responsible Army or Navy officer, on Form NAVCG 2633, as necessary in the war effort, or in the national interest, the number of civilians, military personnel, if any, and crew, shall not exceed the total capacity of the lifeboats.

(d) When the passengers carried are predominantly women and children, such transportation shall be in full compliance with the provisions of the certificate of inspection and waivers will not be granted, even though requested by the Army or Navy.

(ii) Freight vessels.—(a) When such vessels are fitted with a normal number of lifeboats for vessels of their type, they may be permitted to carry civilian passengers in excess of 12, but the total number of civilians, military personnel, if any, and crew on board shall not exceed 75 percent of the combined capacity of the lifeboats.

(b) When freight vessels are fitted with lifeboat capacity greatly in excess of that normally required, such as those vessels converted for troop transports, they may be permitted to carry civilian passengers in excess of 12, but the total number of civilians, military personnel, if any, and crew on board shall not exceed 50 percent of the combined capacity of the lifeboats.

#### G. Structural reinforcements

When waivers are issued to permit the transportation of passengers on vessels of the Liberty type (EC2's), structural reinforcements shall be as follows:

(i) When either a cargo carrying Liberty ship is permitted to carry in excess of 12 passengers or a passenger Liberty ship is permitted to carry passengers in excess of the number allowed by its certificate of inspection, the ship shall meet the minimum requirements in Coast Guard drawing No. EMM 17-S11-17-1, dated 23 June 1945 and Coast Guard drawing No. MI 14-S11-17-1, detail B, which include:

Hatch corner reinforcements.

Deck slots and straps.

Sheer strake slots and straps or gunwale angles (Vessels having riveted longitudinal shell seams are not required to have either sheer strake straps or gunwale angles).

Serrated or drilled bilge keels.

These requirements are minimum standards and any ship reinforced in accordance with Coast Guard drawing No. MI 15-S11-17-1, dated 8 February 1944, with authorized modifications, or other applicable drawings containing greater requirements is acceptable to the Coast Guard.

(ii) When permitted to carry twelve or less passengers, the ship shall meet the minimum requirements set forth in Coast Guard drawing No. EMM

17-S11-17-1, which include:

Hatch corner reinforcements.

Sheer strake slots and straps or gunwale angles (vessels having riveted longitudinal shell seams are not required to have either sheer strake straps or gunwale angles).

Serrated or drilled bilge keels.

H. Period for which waiver may be made effective.

Waivers for the transportation of civilian passengers may be specified for one or more voyages, or for certain periods of time, as necessity may require, and will be dated to terminate on or before expiration date of vessel's certificate of inspection. Waivers issued in a foreign port to vessels with expired certificates of inspection will be dated to terminate on arrival at the first United States port touched by such vessel.

I. HQ's copy of waiver.

Copies of all waivers issued under these instructions will be forwarded

to HQ as heretofore.

4. The foregoing instructions will not, in any way, affect the authority of the Army or Navy, under Navigation and Vessel Inspection Circular No. 40, to accept responsibility for a waiver previously denied under Navigation and Vessel Inspection Circular No. 37.

(Signed) Merlin O'Neill, Rear Admiral, U. S. Coast Guard, Acting Commandant.

## No. 70

Structural Alterations and Reinforcements on Liberty Ships

UNITED STATES COAST GUARD

WASHINGTON 25, D. C.

26 March, 1946.

 The conversion of Liberty ships to permit the carriage of troops was dictated by the pressing necessity for transporting large numbers of troops in the successful prosecution of the war. The recommendations of the Coast Guard covering structural alterations and reinforcements had to be modified in some cases. Over 400 Liberty ships were fitted with special hatch corners, deck slots and straps, and gunwale reinforcements, and these vessels were used, as far as possible, for the carriage of troops. However, several recent casualties to passenger carrying Liberty ships resulted in dangerous cracks in these vessels. It was developed that many vessels of this type which have been carrying passengers do not have deck straps.

2. The recent casualties to both passenger carrying and cargo carrying Liberty ships indicate that certain Coast Guard recommendations for structural reinforcements should be met as soon as possible now that the end of hostilities has eased the situation insofar as military necessity is concerned. Therefore, the following changes in Coast Guard policies regarding structural alterations and reinforcements on Liberty ships are made:

(a) Liberty ships carrying more than 12 passengers.—On and after 1 April 1946 no certificates of inspection or waivers will be issued to permit the carriage of more than 12 passengers on a Liberty ship unless the ship is reinforced in full compliance with the requirements of Coast Guard drawing No. EMM 17-S11-17-1, dated 23 June 1945, and Coast Guard drawing No. MI 14-S11-17-1 Detail B. These drawings require:

Hatch corner reinforcements.

Deck slots and straps.

Sheer strake slots and straps or gunwale angles.

Serrated or drilled bilge keels.

These requirements are minimum standards and any ship reinforced in accordance with Coast Guard drawing No. MI 15–S11–17–1, dated 8 February 1944, with authorized modifications, or other applicable drawings containing greater requirements is acceptable to the Coast Guard.

(b) Liberty ships carrying 12 or less passengers.—On and after 1 April 1946 no certificates of inspection or waivers will be issued to permit the carriage of 12 passengers or less on a Liberty ship, unless the ship has been reinforced in full compliance with the requirements of Coast Guard drawing No. EMM 17-S11-17-1, which include:

Hatch corner reinforcements.

Sheer strake slots and straps or gunwale angles.

Serrated or drilled bilge keels.

(c) Liberty ships carrying no passengers.—After 30 June 1946 no certificates of inspection will be issued to any cargo carrying Liberty ship (dry cargo ship, tank carrier, or tank vessel) unless the ship has been reinforced in full compliance with the requirements of Coast Guard drawing No. EMM 17-S11-17-1, which include:

> Hatch corner reinforcements. Sheer strake slots and straps or gunwale angles.

Serrated or drilled bilge keels.

The structural changes and reinforcement requirements for each Liberty ship have to be made by the time of its annual inspection after the applicable date given in paragraph 2.

4. The transportation of passengers as used in paragraph 2 (a) means the carriage of more than twelve persons

in addition to the crew.

(Signed) Merlin O'Neill, Rear Admiral, U. S. Coast Guard, Acting Commandant.

# Equipment Approved by the Commandant

**BUOYANT CUSHIONS FOR MOTORBOATS** 

Approval No. A-305, standard kapok buoyant cushion, for use on motorboats of classes A, 1, and 2 not carrying passengers for hire, manufactured by Burlington Mills, Inc., Burlington, Wis.

Approval No. A-306, standard kapok buoyant cushion, for use on motorboats of classes A, 1, and 2 not carrying passengers for hire, manufactured by Gladson Upholstering Shop, 3429 Wildwood Avenue, Cleveland, Tenn.

Approval No. A-307, standard kapok buoyant cushion, for use on motorboats of classes A, 1, and 2 not carrying passengers for hire, manufactured by Lite Manufacturing Co., Inc., 101 West Twenty-first Street, New York 11, N. Y.

#### LIFEBOATS

20' x 6.5' x 2.6' steel oar-propelled lifeboat, 20-person capacity, General Arrangement Dwg. No. G-363-D, dated 21 December 1945, submitted by C. C. Galbraith & Son, Inc., 99 Park Place, New York, N. Y. (Supersedes approval 14 June 1945, 10 F.R. 7151, insofar as new construction is concerned.)

18' x 5.7' x 2.5' steel oar-propelled lifeboat, 15-person capacity for ocean and coastwise service or 19-person capacity for inland service, General Arrangement Dwg. No. G-229-D, dated 16 November 1945, submitted by C. C. Galbraith & Son, Inc., 99 Park Place, New York, N. Y. (Supersedes approval 1 November 1944, 9 F.R. 13018, insofar as new construction is concerned.)

16' x 5.7' x 2.3' steel oar-propelled lifeboat, 12-person capacity, General Arrangement Dwg. No. G-362-D, Alt. 1, dated 13 February, 1946, submitted by C. C. Galbraith & Son, Inc., 99 Park Place, New York, N. Y. (Supersedes approval 31 May 1945, 10 F.R. 6428, insofar as new construction is concerned.) (11 F.R. 2673, 14 March 1946.)

#### DAVIT

Straight boom sheath screw davit, Size A-7-0, General Arrangement Dwg. No. 599-S8200-1, Alt. 2, dated 18 February 1946, maximum working load 6,800 pounds per arm, submitted by the Consolidated Services & Supply Co., Seattle, Wash.

#### LIFE PRESERVER

Approval No. B-295, Model 6 child kapok life preserver, Specification 160.002, manufactured by Elvin Salow Co., 379-381 Atlantic Avenue, Boston, Mass. (11 F.R. 2673, 14 March 1946.)

## ITEMS SUITABLE FOR MERCHANT MARINE USE

#### ACCEPTABLE FUSIBLE PLUGS

The Marine Engineering Regulations require that manufacturers who desire to have their products approved for marine service shall submit samples for testing from each heat to the Commandant. If the sample fusible plugs pass the test satisfastorily, the manufacturer is notified and then the plugs may be used on vessels subject to inspection by the Coast Guard-If the sample fusible plugs submitted do not pass the test, a fee of \$20 for each sample submitted is required and must be paid to the National Bureau of Standards, Washington, D. C. For the information of all parties concerned, a list of approved heats which have been tested and found acceptable during the period from 16 February to 15 March 1946, are as follows:

The Lunkenheimer Co., P. O. Box 360, Annex Station, Cincinnati 14, Ohio, heat Nos. 245 to 248 inclusive.

#### PRESSURE VACUUM RELIEF VALVE

The Johnston and Jennings Co., Cleveland, Ohio, Oceco types T and TC pressure vacuum relief valves, sizes 3 and 4 inch, for use with inflammable or combustible liquids of grade A and lower grades on tank vessels subject to the jurisdiction of the Coast Guard.

The Mechanical Marine Co., New York, N. Y., No. 3-V-4 in, vacuum relief valve for use with inflammable or combustible liquids of grade A and lower grades on tank vessels subject to the jurisdiction of the Coast Guard.

#### FLAME ARRESTOR

The Johnston and Jennings Co., Cleveland, Ohio, Oceco type A-20 flame arrestor, various sizes, for use with inflammable or combustible liquids of grade A and lower grades on tank vessels subject to the jurisdiction of the Coast Guard.

## Cancellation of Listings

The following listing published in August 1937 Bulletin of the Bureau of Marine Inspection and Navigation for pressure-vacuum relief valves and flame arrestors is hereby canceled and any such items on board merchant vessels may be continued in service so long as they are in good and serviceable condition:

Johnston & Jennings Co., Cleveland, Ohio, listing canceled for Oceco type B vent units in 2, 3, 4, 6, 8, and 10-inch sizes; also Oceco Conservation vent valves in 2, 3, 4, 6, 8, and 10-inch sizes for use in locations where a flame arrestor is not required.

**ELECTRICAL APPLIANCES** 

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

listed by Coast Guard Headquarters. Before listings of electrical appliances are made, it is necessary for the manufacturer to submit to The Commandant (EMM), U. S. Coast Guard, Washington 25, D. C., duplicate copies of a detail assembly drawing, including a material list with finishes of each corrosive part, of each item. An examination of the drawings submitted will be made and, if necessary, tests conducted on such appliances to determine their suitability for marine use.

#### CERTIFICATION OF ARTICLES OF SHIPS' STORES AND SUPPLIES

Articles of Ships' Stores and Supplies certificated for use on board vessels in accordance with the provisions of part 147 of the regulations governing explosives or other dangerous articles on board vessels, are as follows:

Residol, West Disinfecting Co., 42– 16 West Street, Long Island City 1, N. Y. Certification No. 192, 26 February 1946.

Standard Marine Insect Spray, California Research Corp., 200 Bush Street, San Francisco 4, Calif. Certification No. 195, 26 February 1946.

## Cancellation of

Kilsall Residual Spray, West Disinfecting Co., 42-16 West Street, Long Island 1, N. Y., Certification No. 192, 30 November 1945, published in the January 1946 issue of the Proceedings of the Merchant Marine Council, is canceled.

	Locati	on appara	tus may l	be used	
- Manufacturer and description of equipment	Passen- ger and crew quarters and public spaces	Machin- ery cargo and work spaces	Open decks	Pump rooms of tank vessels	Date of action
The Dayton Manufacturing Co., Dayton, Ohio: Ceiling fixture No. C-10801, nonwatertight, 60 watts		PE-	EM		
maximum, drawing No. 1975, revision 1.  Ceiling fixture No. C-10578, nonwatertight, 60 watts	X			*******	3-1-46
maximum, drawing No. 1001, revision 7.  Ceiling fixture No. C-10811, waterproof, less guard,	x			********	3-1-46
60 watts maximum, drawing No. 2166, revision 0	x			*******	3-1-46
60 watts maximum, drawing No. 612, revision 5	×		******		3-1-46
Illuminated sign fixture No. B-5007, nonwatertight, 25 watts maximum, drawing No. 46D156, revision 0 Ceiling fixtures numbers C-10698 and C-10698A, non- watertight, 75 watts maximum, drawing No. 1524,	3				3-1-46
revision 4	x				3-1-46
Bracket fixture No. L-15099B, adjustable, nonwater- tight, 40 watts maximum, drawing No. 881A, revision 4	x				3-1-46

## Merchant Marine Personnel Statistics

## MERCHANT MARINE LICENSES ISSUED DURING FEBRUARY 1946

#### DECK OFFICERS

Chief mate

	100			441	0.4									9000	N Blac	3			- 13					A THE ST	200	72		200
Oc	ean					B. 8	8. de	Riv	vers	Oce	an	Con	st- se			В. 1	8. de L.	Rive	ers	Oc	ean			Gra	ent kes			Rivers
0	R	0	R	0	R	o	Ř	0	R	o	R	0	R	0	R	0	R	o	R	0	R	0	R	0	R	0	R	o R
37 20 36	78 16 3 57	6	14 1 1 3	1 24	1 79 1	7	57 3	4	2 2 17 2	84 18 55	11 1 1 3	1		-11		1 6	5 1	1 1	4	85 27 73	17 2 1 2	1						
93	154	7	19	25	81	11	71	4	23	157	16	1	3	-		. 7	10	2	4	185	22	1					11.50	0 10
	Ġ9	19	(1)			- IIg	Thir	d ma	te			-17				Pi	lots				7	Inst	er mi	ite			Total	
		3	0	cean						S. 6	B	livers	G	reat		B. S	. &	R	ivers		Unin	spec high	ted v	essel				Grand total
		1	0	I	2 0	В	0	B		R		R	0	В	2	0	R	0	F		0	R	0	B				
				-	2	200							14			42 18 15	25 81			3					11	430 116 77	346 53 255	77 10 33
	O 37 20 36	37 78 20 16 3 36 57	O R O 37 78 6 20 16 1 3 3	O R O R  37 78 6 14 20 16 1 1 36 57 3  93 154 7 19  O  O  16 3	Ocean wise La O R O R O  37 78 6 14 1 20 16 1 1 36 57 3 93 154 7 19 25  Ocean  O I	Ocean wise Lakes  O R O R O R  37 78 6 14 1 1 1 20 16 1 1 24 79 36 57 3 1 24 79 36 57 3 1 24 79 36 57 0 3 1  93 154 7 19 25 81  Ocean O  O R O	Wise   Lakes   I	Ocean wise Lakes L.  O R O R O R O R O R  37 78 6 14 1 1 7 57 3 36 57 3 1 24 79 4 11  93 154 7 19 25 81 11 71  Thire  Ocean Coast- wise 1  O R O R O R O	Ocean wise Lakes L. All O R O R O R O R O R O  37 78 6 14 1 1 7 57 20 16 1 1 24 79 3 4 11  93 154 7 19 25 81 11 71 4  Third ma  Ocean Coast Wise Great Wise All Ocean Coast Great Wise All Ocean Coast Great All Ocean C	O   R   O   R   O   R   O   R   O   R	O R O R O R O R O R O R O R O R O R O R	O R O R O R O R O R O R O R O R O R O R	O   R   O	O R O R O R O R O R O R O R O R O R O R	O   R   O	O   R   O	O   R   O	Wise   Lakes   L.   Rivers   Ocean   Wise   Lakes   L.	O R O R O R O R O R O R O R O R O R O	O R O R O R O R O R O R O R O R O R O	O R O R O R O R O R O R O R O R O R O	O R O R O R O R O R O R O R O R O R O	O R O R O R O R O R O R O R O R O R O	Ocean         Coast-wise         Great Lakes         B. S. & Rivers         Ocean         Coast-wise         Great Lakes         B. S. & Rivers         Ocean         Count Coast-wise         Great Lakes         B. S. & Rivers         Ocean         Count Coast-wise           O R O R O R O R O R O R O R O R O R O R	Ocean         Coast-wise         Great Lakes         B. S. & Rivers         Ocean         Coast-wise         Great Lakes         B. S. & Rivers         Ocean         Coust-wise         Great Lakes         B. S. & Rivers         Ocean         Coust-wise         Great Lakes         B. S. & Rivers         Rivers         Ocean         Coust-wise         Great Lakes         B. S. & Rivers         Rivers         Ocean         Coust-wise         Great Lakes         B. S. & Rivers         Rivers         Ocean         Coust-wise         Great Lakes         B. S. & Rivers         Rivers         Ocean         Coust-wise         Great Lakes         B. S. & Rivers         Rivers         Rivers         Ocean         Coust-wise         Great Lakes         B. S. & Rivers         Rivers         B. S. & Rivers         Rivers         Uninspected vessel high seas           O         R         O         R         O         R         O         R         O         R         O         R         O         R           O         R         O         R         O         R         O         R         O         R         O         R         O         R         O         R         O         R         O         R         O         R         O         R <td>Ocean         Coast-wise         Great Lakes         B. S. &amp; Rivers         Ocean         Coast-wise         Great Lakes         B. S. &amp; Rivers         Ocean         Coast-wise         Great Lakes           O R O R O R O R O R O R O R O R O R O R</td> <td>  O R O R O R O R O R O R O R O R O R O</td> <td>Ocean         Coast-wise         Great Lakes         B. S. &amp; Rivers         Ocean         Coast-wise         Great Lakes         B. S. &amp; Rivers         Ocean         Coast-wise         Great Lakes         B. S. &amp; Lakes&lt;</td>	Ocean         Coast-wise         Great Lakes         B. S. & Rivers         Ocean         Coast-wise         Great Lakes         B. S. & Rivers         Ocean         Coast-wise         Great Lakes           O R O R O R O R O R O R O R O R O R O R	O R O R O R O R O R O R O R O R O R O	Ocean         Coast-wise         Great Lakes         B. S. & Rivers         Ocean         Coast-wise         Great Lakes         B. S. & Rivers         Ocean         Coast-wise         Great Lakes         B. S. & Lakes<

#### ENGINEER OFFICERS

1,743

	Ci	nief engin	eer, stea	m	First assistant engineer, steam Second i						engineer	, steam	Third assistant engineer, steam				
Region	Occ	ean	Inh	and	Oc	ean	Inle	and	Oct	ean	Inl	and	On	ean	Inl	and	
	0	R	0	R	0	R	0	R	0	R	0	R	0	R	0	R	
Atlantic coast. Gulf coast. Great Lakes and rivers Pacific coast.	47 15 5 33	85 24 8 36	2 1 17 4	43 2 83 3	74 17 4 44	32 3 6 10	24 1	9 1 55 2	118 17 3 72	18 5 8 7	12	1 28 2	247 39 3 96	18 2 3	3	1 1 2	
Total	100	153	24	131	139	51	25	67	210	38	12	31	385	23	3	4	
	99		Motor vessels									cted vess	els		Totals		
Region		Chief et	ngineer	First as			assistant ineer		assistant ineer	nt Chief engineer		Assistant engi- neer		Orig-	Re-	Grand	
		0	R	o	R	0	R	0	R	0	R	0	R	inal	newal	total	
Atlantic coast. Gulf coast Great Lakes and rivers Pacific coast.		45 6 2 17	53 13 15 40	16 -4 -1 9	15 5 7 7	7 4 1 6	5 5 5	180 12 62	3 3 1		4	2	2	736 115 75 348	283 56 220 122	1, 019 171 295 470	
Total		70	121	30	34	18	15	254	7	2	4	2	2	1, 274	681	1, 955	

#### ORIGINAL SEAMEN'S DOCUMENTS ISSUED, MONTH OF FEBRUARY 1946

Region	Contin- nous dis- charge book	Certifi- cate of iden- tity	A. B., green, 3 years	A. B., green, 9 months emer- gency		A. B., blue, 6 months emer- gency 2	A. B., blue, 6 months emer- gency <sup>3</sup>	Life- boat, 12-24 months	U. S. Mer. Mar. Doc.	Q. M. E. D., 6 months	Q. M. E. D., emer- gency	Radio oper- ators	Certifi- cate of service	Tanker man	Staff officer	_Tota
Atlantic coast	5 19 13 44	3 0 0 0	143 14 97 26	270 94 181 10	221 15 150 64	7 0 2 4	0 0 0 0	609 171 355 51	5, 523 1, 527 2, 282 312	522 210 417 150	441 375 309 67	20 4 10 0	4, 707 1, 253 1, 778 286	85 24 25 8	381 79 233 1	12, 947 3, 785 5, 852 1, 023
Total	81	3	280	555	450	13	0.	1, 186	9, 644	1, 299	1, 192	34	8,024	142	694	23, 597

Unlimited.

#### WAIVERS OF MANNING REQUIREMENTS FROM 1 FEBRUARY TO 28 FEBRUARY 1946

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

Region	Number of vessels	Deck offi- cers sub- stituted for higher ratings	Engineer officers sub- stituted for higher ratings	Able sea- men sub- stituted for deck officers	Ordinary seamen sub- stituted for able seamen	Qualified members of engine department substituted for engi- neer officers	Wipers or coal passers substituted for qualified members of engine department	Wipers. coal passers or cadets substituted for engi- neer officers	Ordinary seamen or endets sub- stituted for deck officers	Total
Atlantic coast	718 239 270 1	227 80 69	323 124 134	39 32 26	1, 694 627 615	60 41 72	406 197 383 1	16 6 6	34 7 20	2, 808 1, 123 1, 325
Total	1, 228	385	581	97	2, 936	182	987	28	61	5, 256

#### CREW SHORTAGE REPORTS FROM 1 FEBRUARY TO 28 FEBRUARY 1946

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

	Number of vessels	A TOTAL	Ratings in which shortages occurred												
Region		Chief mate	Second mate	Third mate	Radio	Able seamen	Ordinary seamen	Chief engineer	First engineer	Second engineer	Third engineer	Qualified member engine de- partment	Wiper or coal passer	Total	
Atlantic coast Gulf coast Pacific coast Great Lakes	30 35 10 9	i	1 4 1	4 9 3 2	<u>1</u>	10 13	9 8 2 3		5	2 3 1	3 7 3 3	12 9	11 3 2 2	61 63 12 15	
Total	84	1	6	18	1	35	22		6	6	16	22	18	151	

<sup>2</sup> Great Lakes, lakes, bays, and sounds. 2 Tugs and towboats and freight vessels under 500 tons (miscellaneous). 4 12 months deck or 24 months other departments.

NOTE .- There were 137 Panamanian Employment Cards issued.



See page 55 for description