

PROCEEDINGS OF THE MERCHANT MARINE COUNCIL

UNITED STATES



COAST GUARD

The printing of this publication has been approved by the Director of the Bureau of the Budget, January 14, 1955.

This copy for
not less than
20 readers.
PASS IT ALONG

CG 129

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MERCHANT MARINE COUNCIL

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Coast Guard

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FRONT COVER
Rehearsal for emergency is the keynote aboard the SS *Delaware Sun* as crew members fight a simulated fire with foammakers while their shipmates prepare No. 4 lifeboat for launching. *Photograph courtesy Sun Oil Co.*

BACK COVER
The cartoon featured on this page was the subject of a contest sponsored by the Accident Prevention Bureau of the Pacific Maritime Association to determine who could spot the most "safety errors" depicted. The three top winners found more than 150. How many can you find? *Illustration courtesy Industrial Indemnity Co.*

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"CODE OF GOOD PRACTICE" PANEL

The Merchant Marine Council, in its capacity as a deliberative body, considers proposed navigation and vessel inspection laws and regulations affecting the safety of the merchant marine as one of its functions.

Public hearings provide a forum where problems concerning the public and the Coast Guard may be considered. At the May 1957 public hearing held in Washington, D. C., an amendment to the Rules and Regulations for Cargo and Miscellaneous Vessels was proposed relative to the establishment of minimum standards for the proper stowage of bulk ore and similar cargoes when carried on general cargo vessels.

Based on comments received at this hearing, which drew attention to the many factors to be considered in the carriage of ore and ore concentrates, the Coast Guard has appointed an advisory panel from industry and other interested parties to develop with the Coast Guard a specific "code of good practice" for the carriage of such cargoes.

Casualties have indicated the need for establishment of minimum standards for the proper stowage of bulk ore and similar cargoes when carried on general cargo vessels. The newly appointed panel is studying technical and practical aspects of this problem, and their report will form a basis for a "code of good practice" which can be covered by amendments to the regulations, if found necessary.

HEAD TO HEAD WITH RADAR

By Thomas F. McGovern

THE CATCH title belongs to Rear Adm. Joseph A. Kerrins, USCG, one of the first analysts of radar collisions. The content varies with the audience, whose uniform first inquiry is what conceivable contribution a lawyer could make to a study of vision with or without radar. In using experts from the various fields represented here, I have discovered that no scientist knows what a lawyer does.

First, I must give away a professional secret. After years of study from a tremendous number of books, the thing that really matters is to get all of the facts out in the open. Mr. Justice Pilcher put it beautifully when he told the Madrid 1955 Comite International Convention, "I am a lawyer, and after a long time in the law, I have come to the conclusion that what matters most is fact."

We collision lawyers are great investigators, collectors, and analysts of various items of fact reported with varying degrees of accuracy. The judgments are made only after all the facts are in and with the fullest deliberation. To the observer, witness, or victim, it does not always so appear. R. Harrison, Master Mariner, made a point in favor of the witness when he said:

ABOUT THE AUTHOR:

Thomas F. McGovern, an admiralty lawyer, was trained in a New York admiralty firm and with the Coast Guard Merchant Marine Units in New York and the United Kingdom. As an admiralty trial lawyer for the Government since 1941, he has prepared and tried a number of radar collision cases, including the *Wilkes-Davila*, the *Duke of York-Haiti Victory*,



and the *Ruchamkin-Texas*. The talk from which the excerpts were taken was addressed to the Committee on Vision of the Armed Forces National Research Council, which outlines the research in the field of vision and is an argument for research along lines that would be helpful in maritime radar collisions. The analysis of the problem is simplified, and the author requests that his navigating critics read Capt. H. Topley of the Ministry of Transport in the April 1957 *Journal of the Institute of Navigation*, London, page 193, for a three-page analysis of the technical problems. The views presented were those of an individual and are not official and do not necessarily represent the views of the Department of Justice.

*** I am just as unqualified as the lecturer to speak about collisions because I also have never enjoyed the privilege of being in a ship in collision, but I have listened to the arguments of lawyers in collision cases. In a case in the Admiralty Appeal Court 3 learned judges, 4 counsel, 2 assessors with solicitors and officials argued for 5 full days over a collision. The case had already been heard once and was probably going to be heard twice more, and altogether the total time likely to be taken was over 15 days. The unfortunate masters had less than 5 minutes in which to decide how to avoid collision, and the courts, after many full days' consideration, had come to different conclusions as to the relative responsibility for the collision. One thing that struck me after listening to these learned gentlemen was how little they seemed to know about the sea. It would take 10 or more minutes to explain some small point which was quite evident to any ordinary ignorant sailor. (8 *Journ. Inst. Nov. 279.*)

Nevertheless, we collision lawyers do describe and classify the events reported and make a mosaic of causation nets with care that the unknown items are left as blank spaces. This contributes a good deal more than you can get from a statistical study of collisions although both systems suffer in that collisions which radar has not averted do not help in determining good practice. We should like to study the collisions which radar has prevented.

PAST BACKGROUND

From our past background of descriptions of collisions—with a Federal digest of 749 pages with 154 subindices on collision, and an A. M. C. digest of 278 subindices which starts out from the four classical positions, we can assure fellow students in this field that radar, like the automobile, is being blamed unjustly.

Our ancestors ran at 16 knots in a dense fog in the Fall River Line in 1850; and at 16 to 19 knots on the North Atlantic in the Cunard Line in 1890. Long before radar there was an old saw about reduced speed in fog being the same r. p. m.'s as full speed but with a standby bell to the engine-room for some fancy maneuvering on short notice.

Radar is not the cause of the fog violations which are as prevalent as auto-speed violations. It is the economic pressure on seamen which makes them keep schedules—fog or no fog. (*Carothers, U. S. N. I. Proc., Jan. 1957, p. 69.*)

In the *Duke of York-Haiti Victory*, the *Duke* ran between one railhead and another, and we proved that she

made her 16 knots, fog or clear, with her radar working and on the night of the collision with it inoperative. That was not the personal plan of her master, who was groping around for visual contact with Galloper Lightship when the *Haiti* hit.

Radar is an aid to mariners whose owners' schedules require them to risk their licenses in periods of poor visibility; it is not a cause—nor is it a panacea. Looked at from the mariner's point of view—once having used radar when forced to proceed at "moderate" speed in a fog, it becomes a tool that he cannot afford to be without.

RADAR-ASSISTED COLLISIONS

However, the tool affects the user, and we have definite cases of radar assisting in collision. There is some controversy about the use of this word. It seems to have originated in part of the opinion by Willmer J. in the *Anna Salen* (1954) (1 *Lloyd's List L. R. 475*): "It is a melancholy reflection that the collision probably would not have happened if the ships had not been equipped with radar."

Up in Canada, where the navigation season is short and summer fogs cannot stop all navigation, there was a delightful example of the situation. Dense fog enshrouded the confluence of the Saguenay and St. Lawrence Rivers; a large vessel, the *Maria Paolina*, whose radar was out of order, was downbound the Saguenay where it is only 0.6 mile wide. In from the big river comes the Canadian ferry *St. Lawrence* with 400 passengers; a deckload of autos; a gyrocompass which she was not using; a magnetic compass which she was using despite her auto deckload; and a radar set over which no bearings were taken and, of course, not plotted.

After three successive 5° right rudders, the *St. Lawrence* hit the *Maria Paolina* about whose presence she had been warned not only by radar but by radiotelephone from a shore station. The Canadian admiralty judge, who heard the pilot testify, said he derived the impression that those in charge of the *St. Lawrence* were lulled into a false sense of security by the mere fact that the vessel was equipped with radar. (1954 *Ex. C. R. 211.*)

This false sense of security was also noted by Prof. Nicholas J. Healy 3d, in a 1954 address on *Legal Effect of Radar*, in which he reads a number of my own cases differently than I do; but which is the best legal summary of the decisions reprinted in *Proceed-*

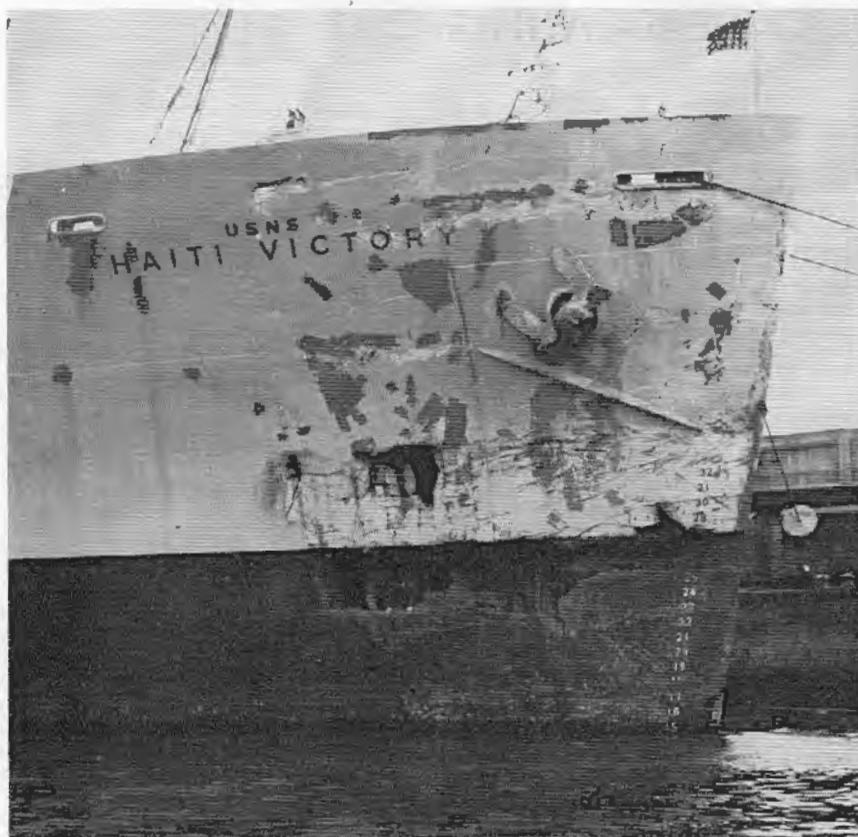


Photo courtesy U. S. Navy

ONE OF THE collision cases discussed in this article is the SS Haiti Victory-Duke of York pictured above. Note crewmembers looking out of slash in the starboard bow.

ings of the Merchant Marine Council. Admiral Kerrins in 1947 identified the oversell and its effect when he said:

When radars were first installed on merchant vessels there was optimism that vessels so equipped would never become involved in collisions. There was a tendency, I believe, to think that the radar itself would prevent such casualties—as though there was concealed in the radar stand a Bugs Bunny who at the proper time would say, "Better turn right, Doc," "Better slow down now, Doc." (Kerrins, J. A., *Effect of Radar on Collision Law*, A. M. M. Conf., New York, 1947.)

Prof. W. E. K. Middleton in 1952 made a scholarly appraisal when he wrote:

The public concerned is one that has been oversold on such nonvisual aids as radar and ground control to the extent that they are likely to underrate the importance of actual seeing. (*Vision Through the Atmosphere*, 1952.)

And yet, after the *Doria-Stockholm* the New York Times reprinted an AP Newsfeature cartoon with a traffic cop in the sky marked *Radar* with the further caption, "One Traffic Cop Who Should Never Sleep." This is

the old Devil Worshipper back again; the Magic Eye That Never Sleeps; the Super Computer That Will Let Us Stop Thinking!

LITTLE INTEREST

Before you begin to feel superior to the poor sailors who have never learned critical thinking, let me ask you if any one of you had the least interest in marine radar collisions before the *Stockholm-Andrea Doria* happened. The best of us think in parables; and apparently Americans identify themselves with passengers rather than with sailors. At least, the 39 men lost when the *Esso Suez* and *Esso Greensboro* met in a Gulf of Mexico fog and went right and left into a \$3 million fire in 1951, did not seem to touch the public, despite the conviction of the surviving master and widespread publicity by the Coast Guard. It should not have taken the loss of the *Titanic* to awaken the world to the North Atlantic ice problem; and it should not have taken the *Doria-Stockholm* to remove the magic-eye halo from radar.

The courts in Canada, the United

Kingdom, and in New York had, in the *Triton-Baranof* (1956), A. M. C. 967; the *Prins Alexander* (1955), 2 Lloyd's List, 1; and in the *Australia Star*, 172 F. 2d 472 (1949), and *Bucentaur*, 125 F. Supp. 425 (1954), had come up with radars where the operator had misused his set or abdicated to it—depending on your view of man-machine dominance. Of necessity, all these litigated cases are failures—the successful user of radar does not have collisions; and the court's view is dim and its language sad as it explains the limitations on the accuracy of bearings taken over a PPI scope and plotted at best with a grease pencil on a repeater.

The underwriters who right after World War II had welcomed radar and the gyrocompass as reducers of loss from stranding and collision began to feel the sting. The 155th Annual Report of the Liverpool Underwriters' Association 1956 began to star the important collisions when "Fitted with Radar" and to note that 52 radar-equipped ships were in collision in the Loss Book for 1956. There were 14 total losses and 1,506 partial losses from collision in 1956, so that this is not statistically remarkable.

BANG-UP SURPRISE

It has been this observer's qualitative analysis that when a radar-equipped ship hits another ship which should not be there in the prior judgment of the watch officer, it is a real bang-up surprise; and a great improvement over our old-fashioned whistle-blowing, stopping-and-backing collisions which used to occur as two vessels tried to get by in a fog depending on hearing whistles alone.

The underwriters have been active in supporting research into the causes of radar collision or perhaps into why radar does not prevent more collisions; and in the United Kingdom, the Radio Advisory Service, the Admiralty, and Ministry of Transport in 1952, came out with a cooperative manual edited by Captain Wylie known as the *Use of Radar at Sea*. Two chapters of this work tattooed on the chests of mariners would have avoided a great many collisions. Since the *Doria-Stockholm*, the British require their mates, effective 1 June 1957, to present a certificate of proficiency as radar observer before they sit for a second mate's license. The radar observer course lasts 2 weeks and is not free.*

*See the September issue of the *Proceedings* regarding the proposal by the Merchant Marine Council to require certificates as "Radar Observers on U. S.-Inspected vessels."

As far back as 1948, the American delegation to the London Safety at Sea Convention pushed and lost by 14 to 0 a proposal to warn in the International Rules themselves that radar did not change the fog rules. As a compromise, the warning was left in the proceedings as Recommendation 19, available only to the scholarly and not in the rules themselves. It was not the fault of the courts, the lawyers, the underwriters, the merchant marine inspectors on both sides of the Atlantic, or of the navy that you were lulled into the old unsinkable *Titanic* lethargy.

In a Special Radar Safety Letter of the U. S. P. & I. Agency, which is a good manual for use of the Maneuvering Board, appears the following deduction:

Within 10 days, four large ships were in collision. Two of them sank. Heavy loss of life and property damage resulted. Yet all four had their radars working and sighted each other on the radarscopes well before reaching the collision point. Nothing was wrong with those radars. Something was apparently wrong with the human element in charge.

One of the saddest of the quotes from this golden era of electronics is a 1949 article on "Use of Radar by Swedish Ships" (reprinted in *Merchant Marine Council Proceedings*, May 1950):

"Radar is the ship's superhuman eye."

NO BUGS BUNNY

The opposite position taken by Admiral Kerrins in his 1947 warning that there was no Bugs Bunny inside and by the American delegation to London in 1948 was no tribute to Yankee ingenuity; it was just that we had bloodied our noses first. In 1949, Comdr. J. K. Taussig, USN, in "*Radar, Collisions, and the Rules of the Road*" (*U. S. N. I. Proc.*, September 1949), collected some of the more instructive Navy cases.

In the *Lookout Mountain-Shirra-bank*, the Casablanca Swept Channel with zigzags was full of 2 outbound and 1 inbound convoy when a fog-bank moved in. The escorts and picket boats attempted to get their charges by single file on radar alone. There were five collisions, and as Commander Taussig put it, "Obviously the initial confusion caused by the fog quickly disintegrated into chaos * * *." The Navy type CIC with plotting boards; VG projection plotter, and the separate staff of high I. Q. ratings who advised the deck by phone of their predictions were supplanted by the one-man band of peacetime.

With one mate to a 4-hour watch; with the radar in the wheelhouse; the



W. L. WILLIAMS, third mate aboard the American President Lines SS *Lone Star Mariner*, is pictured checking radar indicator unit in a typical merchant ship layout. Note handily located plotting table for developing true course and speed.

only plotting surface in the chart-room; and the mate supposed to be out in the weather on the open bridge, there were some interesting changes in procedure. Various mechanical aids were put on the PPI scope, cursors, hairline, and grids which reduce the time lost in plotting. Unfortunately, the size of the scope and the width of the grease pencil conceal the small changes of course which merchant ships make when passing in the open sea. Moreover, the plotting takes time. Rear Adm. R. E. Wood, USCG, who is one of the more stimulating thinkers in this field, said:

On the average ship it takes probably better than 5 minutes of observation, plotting, measuring, computing, and *thinking* to get approximate course and speed of another vessel. If he changes course or speed, it becomes a new problem. (*Weekly Underwriter*, 20-27 April 1957.)

Captain Wylie, R. N. (Ret.), agrees that aspect (course and speed) is a derivative which lags 4 to 6 minutes behind the first observation (*R. T. C. M.*, Boston, 1954).

It might be expected that mariners would give themselves time to plot by using their longest range setting. Captain Wylie found that most users were keeping down to a 10-mile or even a 5-mile scale; and also that they adhered to the relative rather than a true PPI presentation.

THE NATURE OF THE PROBLEM

The problem looks simple. After the *Stockholm-Doria*, diagrams appeared in the newspapers and even in the *London Economist*, we maritime collision lawyers received all sorts of advice from automobile collision lawyers and others who took the lines in the diagrams for courses steered as in a road collision diagram. Why not just keep to the right, they said.

Our ancestors tried this after a Royal Commission of 1836 in a Trinity House Rule of 1840 which is famous as the Port Helm rule (equivalent in modern steering to the Right Rudder rule) and was adopted in the American rules of 1864, where it read: "Art. 13. If two ships under steam are meeting end on, or nearly end on, so as to involve risk of collision, the helms of both shall be put to port (*Today—Right Rudder*) so that each may pass on the port side of the other."

Literal-minded mariners went hard right across the bows of the other vessel until in 1868 the rule was amended with an explanation still contained in article 18. The colored side lights and a 5-mile white mast-head light introduced in 1862 were an early scientific contribution, burning sperm oil. Today we are still on

(Continued on page 167)

SUN OIL COMPANY STRESSES SAFETY ON THEIR SHIPS

SAFE SHIPS are the result of safe practices!

A prime example of this axiom in action is found in the oceangoing fleet owned and operated by the *Sun Oil Co.* Winner of the National Safety Council first-place award for the second straight year, this 15-ship fleet says that "rehearsals for emergencies are the reason why *Sun's* ships are the safest afloat."

The photograph alongside illustrates preparation for emergencies before they happen. In this simulated casualty, instruction is being given aboard ship in reviving an unconscious man, overcome by gas fumes. According to *Sun* officials, this drill is just one of many that are carried out to train seamen in what to do when the real thing takes place.

In addition to shipboard drills, the safety engineer regularly sends safety letters to each ship in addition to safety posters for bulletin boards. Marine management writes letters on safety matters, and safety committees meet often on each ship to discuss hazards and best methods of eliminating them. Minutes of the meetings contain suggestions for corrective measures.

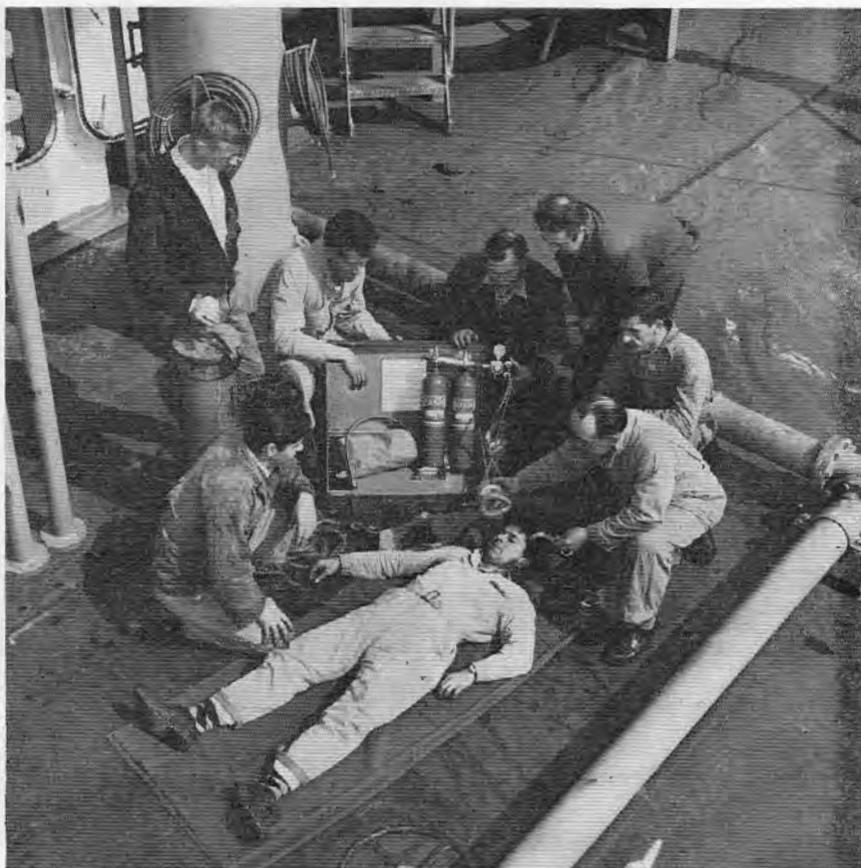
Sun management has a policy of following these up without exception. Those that are practical are adopted. If the idea is too costly, of limited merit, or unworkable, a letter is sent back to the ship explaining the reason for the action taken. According to Charles L. Boyle, marine manager, "nothing will discourage a man faster than having a sincere safety suggestion ignored."

The *Proceedings* is pleased to learn of the intensive safety program so vigorously applied in the *Sun Oil Co.*

BIGGEST SUGAR CARGO

Delivery of 13,289 tons of raw Hawaiian sugar by Matson's SS *Hawaiian Retailer* to the Crockett, Calif., refinery was announced as the largest single cargo ever delivered at this installation.

Last year the *Retailer* lifted 13,571 tons of sugar from the islands to east coast refineries—another record.



PROCLAMATION 3192

FIRE PREVENTION WEEK, 1957

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

WHEREAS many lives can be saved and property valued in millions of dollars conserved through effective fire-prevention programs in communities throughout the Nation; and

WHEREAS the increase in losses caused by fire during the past year accentuate the need for increased care and greater emphasis on fire-prevention practices by all our people:

NOW, THEREFORE, I, DWIGHT D. EISENHOWER, President of the United States of America, do hereby designate the week beginning October 6, 1957, as Fire Prevention Week.

I call upon our people to promote programs for the prevention and control of fire; 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 second day of August in the year of our Lord nineteen hundred and fifty-seven, and of the Independence of the United States of America the one hundred and eighty-second.

DWIGHT D. EISENHOWER.

By the President:

CHRISTIAN A. HERTER,
Acting Secretary of State.

NEW LOOK IN SHIPS

WITH THE BULK of United States merchant ships rapidly approaching a point of block obsolescence, the United States Maritime Administration has developed preliminary designs for seven different types of replacement vessels.

Most of the present-day merchant fleet was built in the years 1937-44, and the replacement of these vessels has been one of great concern to the Maritime Administration and United States ship operators.

Pictured on this page are six ships which the Maritime Administration after research and experiments has developed to embody characteristics desirable in ships which will form the future American merchant marine.

The keynote of this design program is versatility and flexibility. In order to provide for the widest range of requirements in the service of our mer-

chant marine and at the same time maintain the number of basic cargo ships to practical number, ship characteristics were so selected as to permit modifications which could adapt the basic ship to different requirements.

This program has been based primarily from studies of trade route requirements, competitive conditions, operational experience, and needs of ship operators in our merchant marine.

Three of the cargo ships now contemplated can negotiate the St. Lawrence Waterway while carrying maximum load. The other vessels, while their beam will allow transit of the waterway, exceed the minimum draft requirements when loaded.

The Office of Ship Construction and Repair of the Maritime Administra-

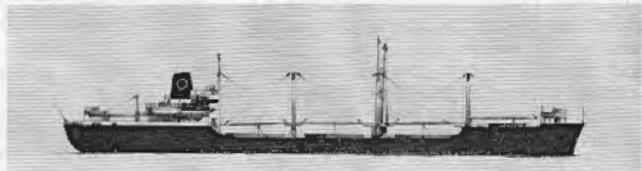
tion prepared the artist's concept of these new vessels.

By contrast to the now familiar C-type vessels, all of the proposed ships will be of the full scantling rather than the shelter-deck type. The main advantage attained by this type vessel is that flush mechanical hatch covers can be fitted on the second deck in lieu of the 9-inch coaming required on shelter deckers. An effort has been made to increase the hatch sizes to improve the layout and the control of cargo winches, and finally an improved type of cargo gear has been adopted for all the cargo ship designs.

Complete details on these vessels may be obtained from the pamphlet "New Ship Designs for the United States Merchant Fleet" for 25 cents from the U. S. Department of Commerce, Washington, D. C., or any of its field offices.



ISLAND CLASS—350-foot length; 21-foot draft; 5,000 tons deadweight; 14-16 knots' speed; intended for replacement of the C1-M-AV1's.



FREEDOM CLASS—417-foot length; 26-foot 6-inch draft; 8,500 tons deadweight; 16-18 knots' speed; intended for replacement of the C1B's.



CLIPPER CLASS—460-foot length; 28-foot draft; 10,800 tons deadweight; 18 knots' speed; intended for replacement of C2's.



SEAFARER CLASS—494-foot length; 29-foot 9-inch draft; 13,500 tons deadweight; 18 knots' speed; intended for replacement of C3's and C4's.



PIPELINE CLASS—595-foot length, 32-foot draft; 20,000 tons deadweight; 20 knots' speed; has speed and boiler capacity to permit fleet servicing under wartime conditions.



BULK CLASS—580-foot length; 33-foot draft; 24,000 tons deadweight; designed as a common carrier for all types of dry bulk carriers.



MARITIME SIDELIGHTS

The *Empire State III*, training ship of the State University of New York Maritime College, Fort Schuyler, returned from its 1957 European cadet cruise after a 10-week training exercise for 310 prospective merchant marine officers.

‡ ‡ ‡

Last year Matson Terminals in the San Francisco Bay area worked a total of 1,715,000 man-hours and experienced only 53 disabling injuries, according to the *Stevedores Guide*, published by the Pacific Maritime Association of the Pacific Coast. This record—far below the industry average for this type of work—received favorable comment from the National Safety Council and the Bureau of Labor Statistics.

‡ ‡ ‡

The USNS *Petrarca* received a plaque from Rear Adm. H. S. Persons, Commander Pacific Area, for operating a million man-hours without accident in ceremonies on the west coast. The lowest transport accident rate plaque went to the USNS *Daniel I. Sultan* with a 1.32 average.

‡ ‡ ‡

Reported as the world's largest non-propelled oil barge, *Barge 14* recently was launched at the Pacific Coast Engineering Co., Alameda, Calif. Designed for coastwise service, the barge has a capacity of 2,300,000 gallons.

‡ ‡ ‡

Relief officers reporting for duty aboard the SS *Keystone State* will not be allowed to take over the watch until all safety devices and equipment have been made known to them, it was announced in the *Safety Bulletin*, published by the States Marine Lines. An entry is to be made in the deck and engine logbooks that this procedure has been followed, the announcement said.

The 31st national convention of the Propeller Club of the United States and the 1957 American Merchant Marine Conference will be held in Houston, Tex., October 20-23, 1957.

‡ ‡ ‡

The 45th National Safety Congress and Exposition will be held in Chicago, Ill., October 21-25, 1957. The Marine Section, with Capt. Jones F. Devlin, Jr., general manager, United States Lines, as chairman, will be held on the afternoon of the 22d, all day the 23d, and finish on the 24th.

‡ ‡ ‡

It was announced at the semiannual meeting of the American Bureau of Shipping that there now exists in class with this bureau 8,238 vessels of 42,696,825 gross tons. These vessels are registered in every major maritime nation and include seagoing and coastal tonnage, Great Lakes and river craft, both self-propelled and non-propelled.

‡ ‡ ‡

In addition to the major ship subsidy between the Government and Lykes Bros. Steamship Co. discussed elsewhere in this issue, Clarence C. Morse, Chairman of the Federal Maritime Board, announced that an agreement has been made with the States Steamship Co. to build 13 vessels over the next 20 years at a cost of \$150 million.

‡ ‡ ‡

A report from the American Merchant Marine Institute indicates that American passenger ships are the safest in the world. Over the past 4 years the accident death rate on United States-flag passenger ships is 1 person a year compared with 62.25 a year on trains, 101.5 a year on United States planes, and 37,991.75 a year in automobiles.

A unique welcome greeted the new SS *Santa Rosa* when she was launched at the Newport News Shipbuilding & Drydock Co. yard recently. Diverted from her regular run to South America, the old *Santa Rosa* gave the traditional three whistle blasts to the ship that will replace her this spring. Intended for the Grace Line run between New York and South American ports, the new *Santa Rosa* will have a length of 585 feet and a service speed of 20 knots.

‡ ‡ ‡

The SS *Western Sun* rescued a downed Navy flier from the Atlantic Ocean south of Cape Hatteras, it was reported in the American Merchant Marine Institute *Bulletin*. Capt. Cornelius Van Germert of the *Western Sun* reported a light was seen on the water early in the morning and LCDR. Waldo A. Atkins was taken aboard and subsequently landed in Miami, Fla.

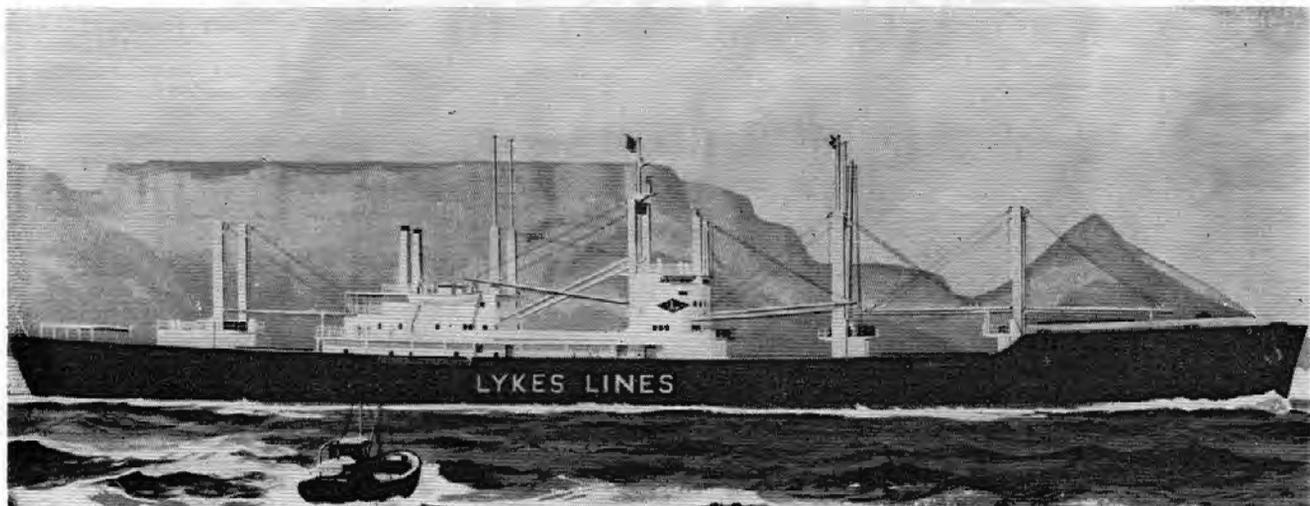
‡ ‡ ‡

Following its merger with the Moore-McCormack Steamship Lines, the Robin Line sold four of their vessels to the Isbrandtsen Company, Inc. The ex-*Robin Tuxford*, *Robin Wentry*, *Robin Doncaster*, and *Robin Kettering* now are named the *Flying Endeavor*, *Flying Fish*, *Flying Gull*, and *Flying Hawk*.

‡ ‡ ‡

Having recently completed the 250th round trip between California ports and Honolulu since World War II, the SS *Lurline*, Matson Navigation Co., is scheduled to depart from this regular run in January. Leaving on January 7, 1958, the *Lurline* will make a 72-day, 23,000-mile cruise of Pacific ports. The ship is expected to call at Papeete, Suva, Auckland, Wellington, Sydney, Bali, Singapore, Bangkok, Manila, Hong Kong, Kobe, Yokohama, and return home via Honolulu.

LYKES TO BUILD 53 NEW CARGO SHIPS



AN ARTIST'S conception of the new ships to be built by Lykes Bros. Steamship Co., Inc., is pictured above. The program, calling for construction of 53 new ships in cooperation with the Maritime Administration, has been described as the largest ship replacement program in the history of the American merchant marine. Illustration courtesy Maritime Administration.

CONTRACTS calling for building 53 new cargo vessels at a cost of over half a billion dollars has been concluded between Lykes Brothers Steamship Co. and the Government.

The agreement calls for the construction of the new ships over the next 14 years, with contracts for the first five vessels expected to be signed by the end of this year.

The first 28 vessels in the replacement program are expected to have the following characteristics:

Length.....	495 feet.
Beam.....	69 feet.
Full load draft.....	29 feet.
Total deadweight.....	11,042 tons.
Passengers.....	12.
Normal shaft horse- power.....	9,000.
Speed.....	17.4 knots.

Additional features of the new ships include air conditioning, hydraulic, quick-opening hatch covers; heavy lift booms including twelve 15-ton and four 10-ton booms, all rigged for complete power operation; power-operated accommodation ladders, and many automatic safety devices.

The ships will be single screw, powered by high pressure steam turbines, and all machinery is expected to be located near the after end of the ship.

The remaining 25 ships will incorporate designs adaptable to the trade routes serviced by Lykes, it was announced.

A new operating subsidy to become effective January 1, 1958, will run un-

til 1977, with a minimum of 262 annual sailings and a maximum of 326 over five trade routes. The routes comprise the following:

No. 19, U. S. Gulf/Caribbean and East Coast of Mexico.

No. 21:

U. S. Gulf/United Kingdom and Elre.

U. S. Gulf/Continent.

No. 13, U. S. South Atlantic and Gulf/Mediterranean and Black Sea.

No. 22, U. S. Gulf/Far East.

No. 15-B, U. S. Gulf/South and East Africa.

Clarence C. Morse, Chairman, Federal Maritime Board, and Maritime Administrator, said: "We have taken 53 ships out of the shadow of block obsolescence. This contract calling for construction awards of some half a billion dollars will mean that an estimated 50,000 man-years will be assured in American shipyards. Included in the estimated cost of the new ships are more than \$200 million in wages. This means also the purchase of an estimated \$240 million in materials, machinery, and equipment outside of the shipyards.

"Here is another demonstration that shipping and shipbuilding benefit all Americans either directly or indirectly. Every American can be assured that his welfare and security has been advanced under the broad impact of this largest shipbuilding and ship operating contract."

SOAK THOSE FENDERS

Navigation Bulletin 57-51, U. S. District Engineer Office, New Orleans, La., has been published for all mariners passing through locks in the New Orleans area and includes an admonition worthy of the attention of all water carriers of flammable cargoes:

"Attention is called to a recent explosion of an empty gasoline barge on the Mississippi River on 26 July 1957, near Clarksville, Mo., which cost the life of one crewman.

"While locking a tow of empty gasoline barges through Lock and Dam No. 24, immediately above Clarksville, one of the hand fenders became hot from friction and burst into flames after being thrown upon the deck of the barge. The crewman lost his life in the explosion while attempting to push the flaming fender into the river.

"Effective immediately, hand fenders on all tows containing flammable cargoes will be water soaked prior to entering the lock approaches in the New Orleans district. Fenders being used will again be dipped in water prior to being thrown upon deck of barge, so long as tow is within the lock approaches and under the jurisdiction of the lockmaster.

"Mariners are expected to cooperate by using fenders on all tows, and by giving special attention to the protection of flammable cargoes, when passing through locks in the New Orleans district."



MERCHANT MARINE STATISTICS

There were 1,129 vessels of 1,000 gross tons and over in the active oceangoing United States merchant fleet on August 1, 1957, according to information released by the Maritime Administration, U. S. Department of Commerce. This was 25 fewer than the number active on July 1, 1957.

There were 161 Government-owned and 968 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 or undergoing repairs. They also exclude 48 vessels in the custody of the Departments of Defense, State, and Interior.

Three freighters were sold foreign, and one new tanker was delivered, making a net loss of two in the total number of privately owned ships.

Orders for 1 new tanker and 1 tanker and 2 freighter conversions, and delivery of 2 new tankers and 1 tanker conversion during the month, placed the total of merchant oceangoing ships being built or converted at 120.

Seafaring jobs on active United States-flag ships of 1,000 gross tons or over, exclusive of civilian seamen manning Military Sea Transportation Service ships, was 59,823. Prospective officers in training in Federal and State nautical schools numbered 1,552.

40 YEARS AGO:

The Bureau of Ordnance of the Navy Department is having manufactured by the Du Pont Co. smoke boxes suitable for use by merchant vessels as a means of escape from attacking submarines. It is urged that merchant vessels give prompt and favorable consideration to the desirableness of purchasing smoke-producing apparatus.

At 12:15 a. m., July 10, 1917, the steamer *Kansan* was torpedoed by a German submarine about 2½ miles east of Kerdonis Point, Belle Isle, France, causing the vessel to sink in 6 minutes. The crew left in lifeboats, but when the roll was called four of the crew were found to be missing.

While enroute from the Hawaiian Islands to San Francisco on July 24, 1917, the steamer *R. P. Rithet* caught fire and was totally destroyed. No lives were lost. The estimated value of the vessel and cargo was \$560,000.

On July 12, 1917, the freight steamer *Grace* was torpedoed without warning by a submarine after rounding Cape Phasso, Andros Island. The torpedo struck on the starboard side and exploded in No. 1 hold, setting fire to the cargo of oil. The vessel sank in 12 minutes, two of the crew having been killed by the explosion and another having been lost when the vessel went down.

30 YEARS AGO:

The Steamboat Inspection Service furnished an exhibit at the Sesquicentennial International Exposition at Philadelphia, Pa. A gold medal was given for the collective exhibit demonstrating the work of this service in carrying out its important function of providing safety to life and property at sea.

While proceeding down the St. Marys River and when about to make the turn to enter the Stone Cut, West Neebish Channel, the steamer *August Ziesing*, of 8,271 gross tons, grounded, resulting in damage to bottom shell plating, estimated at \$5,000.

About 2 a. m. on July 26, 1927, the freight steamer *Stanley Robert*, while proceeding from Stockton to San Francisco, Calif., and while passing through New York Slough, struck a submerged object and capsized abreast of the Redwood Lumber Co.'s dock at Pittsburg. Three lives were lost.

20 YEARS AGO:

On September 1, 1937, Comdr. R. S. Field, USN (ret.), was appointed as Director of the Bureau of Marine Inspection and Navigation. Capt. H. C. Shephard, Assistant Director, had been acting as Director since the resignation of John B. Weaver on May 15, 1937.

On September 1, 1937, American shipyards were building or had under contract to build for private shipowners, exclusive of vessels previously launched, 153 vessels aggregating 312,671 gross tons.

(Continued on page 169)

RADIOTELEPHONE AID

A valuable aid to all users of marine radiotelephone service has been published by the Radio Technical Commission for Marine Services (RTCM) entitled "Marine Radio Telephony."

The booklet describes the radiotelephone system, how it should work, corrective measures to be taken when it does not work properly, and sets forth in laymen's language instructions on the licensing, maintenance, and operation of the equipment.

Emergency and distress instructions are clearly defined, 10 important "rules to remember" are stated, and a special appendix makes a digest of the principal radiotelephone rules for ships. Copies may be purchased from the RTCM, c/o Federal Communications Commission, Washington 25, D. C., for 50 cents each in orders of 25 or more, or 60 cents for single copies.



nautical queries

Q. Given below are five (5) stars with their respective magnitudes. Write your answer to this question by arranging them in descending order according to their brightness; i. e., place the brightest first, the next brightest next, etc.

Star	Magnitude
Elnath	1.8
Rigel	0.3
Canopus	-0.9
Aldebaran	1.1
Ankaa	2.4

A. Star	Magnitude
Canopus	-0.9
Rigel	0.3
Aldebaran	1.1
Elnath	1.8
Ankaa	2.4

Q. A vessel has a standard compass fitted with a shadow pin 4 inches in height. When the shadow cast by the pin is 4 inches in length, what is the approximate altitude of the sun?

A. 45°.

Q. The distance to the sea horizon in nautical miles is approximately equal to 1.15 times the square root of the height of eye.

Without referring to a table and basing your answer on the foregoing statement, determine the approximate distance to the horizon for an observer whose eye is at a height of—

- (a) 9 feet
(b) 81 feet

A. (a) 3.45 miles.
(b) 10.35 miles.

Q. Describe the metallic packing used on the piston rod of a high-pressure reciprocating engine, and explain the provisions for its installation.

A. Metallic packing is ordered from the manufacturer by specific measurement to fit a particular rod. The packing usually consists of 10 rings of 3 segments each. When fitted together they are held in place by a garter spring which sets in a groove formed around the outer circumference of the segments. Each ring is stamped with letter A-B-C, etc., to indicate their respective position on the rod and each segment is stamped 1-2 and 3 to indicate the proper matching of the joints. Pins are set into the face of a segment of one ring to match a hole in the face of another. This is to insure proper alignment of joints.

A gland in two half sections, which fits into the cylinder stuffing box, is recessed internally to house the rings in pairs. The rings are assembled on the rod and the two half glands fitted onto them, bolted together, raised into the stuffing box, and secured against a gasket by nuts. Steam seals are sometimes led between the lower rings by drilled passages through the gland. Other designs vary too greatly to cover fully.

HURRICANE MANEUVERING

Suppose you are at sea when a weather report comes through indicating hurricane with winds up to 75 miles an hour within 50 miles of its center is making up 100 miles to the south of your position. The report adds that the anticipated direction and speed of movement of the storm is Northwest at 10 knots.

Your first thought is to put distance between you and the storm. If your vessel has a speed of 15 knots and there is ample sea room in all directions, what course would put at least 200 miles between you and the storm in the minimum length of time?

Problems similar to this may occur. How would you solve them?

One possible solution, using the maneuvering board, H. O. 2665a, will be shown in next month's issue of the *Proceedings*.

Q. What is a butterfly valve as used on a main reciprocating engine, and what is its purpose?

A. A butterfly valve is a simple disk installed in a steam line so as to fill the cross-sectional area of the pipe when closed. A lever connected on the outside of the steam line would permit opening and closing the valve similar to the manner in which an ordinary damper in a smoke pipe is handled. They may be hand operated or connected by levers to an engine governor. The main purpose of the butterfly valve is to provide automatic or emergency means to cut down the flow of steam to an engine in the event the wheel leaves the water in rough seas, or in case of damage to the shafting.

Q. How is the bedplate of an engine secured to the hull structure of a ship?

A. After the bedplate is properly aligned on its foundation, a number of holes are drilled and reamed through the bedplate and foundation girders, and they are fitted with machined body-bound bolts which are installed with a snug fit. The foundation girders are secured by double riveting to the top angles of the heavy intercostal girders within the double bottoms.

Q. (a) Give the usual ratio of the length of the connecting rod to the length of the crank.

(b) State a practical rule to determine the maximum pressure on the guides for the ordinary ratios of crank to connecting rod.

$$A. (a) \frac{\text{Length of crank}}{\text{Length of connecting rod}} = \frac{1}{4} \text{ or } \frac{1}{2}$$

$$(b) \frac{\text{Maximum pressure on guides} \times \text{load on piston} \times \text{length of the crank}}{\text{length of the connecting rod}}$$

Q. What purpose does the Stephenson link gear serve?

A. The Stephenson link gear serves mainly to reverse the direction of the steam reciprocating engine. It also provides a means of balancing the load on each engine by altering the travel of the valve.

Q. What precaution, with respect to speed, is imposed by the 1948 Convention for Safety of Life at Sea upon the master of every ship when ice is reported on or near his course?

A. When ice is reported on or near his course, the master of every ship, at night, is bound to proceed at a moderate speed or to alter his course so as to go well clear of the danger zone.

Q. What precautions should be taken by a vessel which is drifting with engines stopped during the night or a period of poor visibility in an area where icebergs are prevalent?

A. A vessel drifting with engines stopped in an area where icebergs are prevalent must keep a careful watch to leeward as the movement of a berg is usually influenced more by current than wind. This is caused by the fact that most of the berg is submerged.

LIQUIDS PROPOSED FOR BULK WATER MOVEMENT

A RECENT issue of the *Proceedings* included definitions of Grades A, B, C, D, and E flammable and combustible liquids which prompted a reader to request publication of various products falling into these categories.

Following is a list of petroleum products and liquid chemicals commonly carried in bulk on tank vessels or proposed for water transportation.

In addition to the various grades, it should be noted that certain liquids are designated as liquefied flammable

gases. Liquefied flammable gas has been defined as "any flammable gas having a Reid vapor pressure exceeding 40 pounds per square inch absolute which has been compressed and liquefied for the purpose of transportation." Federal Register Reprint 17-57, dated June 25, 1957, amends Section 30.10-39, Rules and Regulations for Tank Vessels, CG-123, by eliminating the former references to "classes" of liquid flammable gases.

Chemical	Classification	Flash point, ° F., open cup	Reid vapor pressure p. s. i. a. at 100° F.	Chemical	Classification	Flash point, ° F., open cup	Reid vapor pressure p. s. i. a. at 100° F.
Acetaldehyde	Flammable Grade A Liquid.	-58	25.7.	Ethyl ether	Flammable Grade A Liquid.	-40	17.4.
Acetic acid	Combustible Grade D Liquid.	110	.6.	Formaldehyde (37 percent solution)	Combustible Grade E Liquid.	185	1.03.
Acetic anhydride	do.	131	.3.	Fuel oil:			
Acetone cyanohydrin	Combustible Class B Poison.	165	.306.	Grade F. S. No. 1 ¹	Combustible Grade D Liquid.	100 min. ¹	
Acetone	Flammable Grade C Liquid.	15	7.25.	do	do	do	
Acrylonitrile (Dow)	do.	30	3.5.	Grade F. S. No. 2 ¹	do	130 min. ¹	
Asphalt, molten ²	Combustible Grade E Liquid.	+535		Grade F. S. No. 4 ¹	do	do	
Benzene (benzol)	Flammable Grade C Liquid.	12 ¹		Grade F. S. No. 5 ¹	Combustible Grade E Liquid.	150 min.	
Bunker C fuel oil	Combustible Grade E Liquid.	+150		Grade F. S. No. 6 ¹	do	150 min. ¹	
Butyl alcohol-normal (n-butanol)	Combustible Grade D Liquid.	110	.33.	Boiler, Navy special ⁵	do	150 min. ¹	
Butyl alcohol-iso (isobutanol)	do.	105		Boiler, grade heavy ⁶	do	do	
Butyl acetate-normal	do	90	.48.	Furfural (furo)	Combustible Grade D Liquid.	140	.116.
Butyl acetate-iso	Flammable Grade C Liquid.	64 ¹		Gasoline (commercial)	Flammable Grade B Liquid.	-45 ¹	5-11.
Camphor oil (light)	Combustible Grade D Liquid.	125		Hexane	Flammable Grade C Liquid.	-20	5.24.
Carbon tetrachloride	Nonregulated commodity	None	3.3.	Jet fuel, JP-3, high vapor pressure, gasoline and kerosene blend. ⁷	do	Below 80.	5-7.
Casinghead (natural) gasoline	Flammable Grade A Liquid.	Below 0	Above 14.0.	Jet fuel, JP-4, low vapor pressure, wide-cut, gasoline type. ⁷	do	do	2-3.
Chloroform	Nonregulated commodity	None	6.39.	Jet fuel, JP-5, high flash point, kerosene type.	Combustible Grade D Liquid.	140 min.	
Coal tar oil	Flammable Grade C Liquid.	Below 80.		Kerosene	do	110 ¹ min.	
Coal oil	Combustible Grade D Liquid.	110		Lubricating oils	Combustible Grade E Liquid.	300-450.	
Chlorohydrins, crude	Combustible Class B Poison.	90	1.35.	Methyl alcohol (methanol)	Flammable Grade C Liquid.	60	4.47.
Crude petroleum oils	Flammable Grade C Liquid.	20 ¹		Methyl ethyl ketone	do	30 ¹	3.48.
Cymene	Combustible Grade D Liquid.	145		Methylene chloride	Nonregulated commodity	None	13.9.
D-D soil fumigant*	Flammable Class B Poison.	75	11.7	Methyl methacrylate monomer	Flammable Grade C Liquid.	55	
Diesel fuel oil:				Motor fuel antiknock compound (tetraethyl lead) ⁸	Combustible Class B Poison.	Above 80.	
Grade DF-A (Arctic) ³	Combustible Grade D Liquid.	100 min. ¹		Naphtha, light	Flammable Grade A Liquid.	Below 20.	Above 14.0.
Grade DF-1 (Winter) ³	do	do		Pentane-iso	do	Below 60.	15.5.
Grade DF-2 (Regular) ³	do	125 min. ¹		Perchlorethylene	Nonregulated commodity	None	.7.
Grade DF-4 (Heavy) ³	do	130 min. ¹		Phenol	Combustible Class B Poison.	185	.2.
Marine ⁴	Combustible Grade E Liquid.	150 min. ¹		Propylene glycol	Combustible Grade E Liquid.	225	
Diethanolamine	do	280	Do.	Propyl acetate-normal	Flammable Grade C Liquid.	70	
Diethylbenzene	Combustible Grade D Liquid.	133	Do.	do	do	60	2.13.
Diethylene glycol	Combustible Grade E Liquid.	290	.01.	Propyl alcohol-normal (propanol)	Combustible Grade D Liquid.	85	
Dipropylene glycol	do	280		Propyl alcohol-iso (isopropanol)	Flammable Grade C Liquid.	70	1.78.
Ethylene glycol	do	240		Range oil	Combustible Grade D Liquid.	110	
Ethyl acetate	Flammable Grade C Liquid.	30	3.27.	Styrene monomer	do	88	.27.
Ethyl alcohol (ethanol)	do	75	2.28.	Sulfur, molten ⁹	Combustible Grade E Liquid.	440	
Ethyl chloride	Flammable Grade A Liquid.	-45	36.9.	Toluene	Flammable Grade C Liquid.	45 ¹	.942.
Ethylene dichloride	Flammable Grade C Liquid.	65	2.7.	Triethanolamine	Combustible Grade E Liquid.	365	
Ethylene glycol monoethyl ether (cellosolve)	Combustible Grade D Liquid.	110	.23.	Triethylbenzene	do	180	
Ethylene cyanohydrin	Combustible Grade E Liquid.	165	.32	Vegetable oils	do	200-600	
				Vinylidene chloride	Flammable Grade A Liquid.	14 ¹	18.3.
				Xylene	Flammable Grade C Liquid.	63	.43

See footnotes at end of table.

RESPIRATORY INFECTION OF THE VENT TUBES

Chemical	Classification	Flash point, F., open cup	Reid vapor pressure p. s. i. n. at 100° F.
<i>Inorganic substances, acids, and caustics</i>			
Acid slurry.....	Corrosive liquid.....		
Aqua ammonia.....	Nonregulated commodity.....		
29.4% NH ₃	Commercial Grade A.....		23.0.
25% NH ₃	Commercial Grade B.....		15.6.
15% NH ₃	Commercial Grade C.....		6.3.
50% Caustic Soda.....	Corrosive Liquid.....		
73% Caustic Soda.....	do.....		
Hydrochloric acid.....	do.....		
Nitrogen solutions.....	Nonflammable Gas.....		
65% NH ₄ NO ₃ ; 21.7% NH ₃ ; 13.3% H ₂ O.....	Solution 1.....		22.7.
55% NH ₄ NO ₃ ; 25% NH ₃ ; 18.5% H ₂ O.....	Solution 2.....		29.7.
66.8% NH ₄ NO ₃ ; 16.6% NH ₃ ; 16.6% H ₂ O.....	Solution 3.....		14.3.
Phosphorus, elemental—white or yellow.....	Flammable Solid.....	86 ¹⁰	
Sulfuric acid, commercial.....	Corrosive Liquid.....		
Sulfuric acid, spent.....	do.....		
<i>Liquefied compressed gases</i>			
Anhydrous ammonia.....	Liquefied Compressed Gas.....	250.....	250.
Butane, commercial ¹¹	Liquefied Flammable Gas.....	90.....	90.
Butadiene.....	do.....	61.8.....	65.
Chlorine.....	Liquefied Compressed Gas.....	176.....	300.
Methyl chloride.....	Liquefied Flammable Gas.....	145.....	150.
Propane, commercial ¹²	do.....	250.....	250.
Propylene.....	do.....	250.3.....	260.
Vinyl chloride.....	do.....	89.....	90.

*Trade name for a mixture of saturated and unsaturated chlorinated derivatives of propylene (dichloropropene).

¹ Flash point determined by closed cup method.

² Melting point 180°-220° F.

³ Classification conforms to Federal Specification VV-F-800.

⁴ Conforms to Military Specification MIL-F-16884B.

⁵ Classification conforms to Federal Specification VV-F-815.

⁶ Classification conforms to Military Specification MIL-F-859.

⁷ Classification conforms to Military Specification MIL-F-5624C.

⁸ A mixture of tetraethyl lead, ethylene dibromide, and ethylene dichloride.

This liquid is poisonous due to the presence of tetraethyl lead.

⁹ Melting point 234° F.

¹⁰ Auto-ignition temperature in air. Melting point, 111° F.

¹¹ NGAA Specification for commercial butane limits the vapor pressure at 105° F. to a maximum pressure of 75 p. s. i. gage.

¹² NGAA Specification for commercial propane limits the vapor pressure at 105° F. to a maximum pressure of 225 p. s. i. gage.



The title is not intended to be facetious, because in this case it's the cargo tanks which have to breathe so those who sail the tankers may live.

The hidden source of danger is the oft overlooked fact that rust and sediment *can and does* accumulate in the venting system where it is not readily seen and in a short time may build up to such proportions as to clog the line or lines, thereby preventing proper ventilation of the tanks.

An approved system of venting cargo tanks is required on all tank vessels carrying combustible or flammable liquid cargoes in bulk. Nevertheless, this system, with its branch lines from cargo tanks' expansion trunks leading into risers fitted with pressure/vacuum relief valves and flame screens, can become the potential source of a major casualty.

As tankermen know, the pressure can be considerable, even causing the flame screens to dance in the ullage holes when cargo is loaded. Imagine the pressure that is built up in the cargo tank of a vessel at sea with a summer temperature and all openings closed—and with the venting system clogged or a P/V valve inoperative. It is obvious that the condition is undesirable; yet, how many mates on tank vessels can say with any degree of certainty "the vent system is clear, P/V valves are in good operating condition, and that corrosion has not deteriorated any of the system's pipes to a degree regarded as hazardous"?

Not many, to be sure, except those who make the examination and overhaul of the venting system an item of periodic review.

Rules and Regulations for Tank Vessels, CG-123, state that means shall be provided for flushing and draining the vent header system and that the system shall be of sufficient capacity as to be able to carry off all the displaced air and vapors during loading of the cargo tanks without opening of ullage plates, cargo hatches, etc.

In ship's husbandry, there always remains the big factor "Time." How can we find time to do this? How can we transfer cargo and do this work on the vent system? It is a problem and a tough one. The cleaning of the vent system is a task that requires forethought and adequate equipment. Make sure your venting arrangement is clear and capable of performing its job.

HOW ARE YOUR VERTICAL LADDERS?

One phase of shipboard safety that should be on every mate's check-off list is the condition of vertical ladders fitted in cargo holds. Prior to their use, these ladders should be examined and determined to be safe before any of the ship's force or stevedores are allowed to use them.



If a rung is missing or loose the entire ladder must be roped off and steps taken to ensure it will not be used. Any seaman, who descending into a darkened hold, has swung suspended in space because of a missing rung where one was expected on the next step, can appreciate how easily a less familiar person can be injured. The photograph alongside illustrates a typical ladder installed in a cargo hold.

In a case reported to Coast Guard headquarters a longshoreman was ascending a ladder of this type when the top rung carried away and he fell 26 feet, landing on the cargo stowed below. He sustained a fractured pelvis, fractured leg, and other internal injuries which required lengthy hospitalization.

In this casualty it was determined, subsequent to the injury, that it was

PANAMA CANAL VOYAGE IS FOREIGN

RECENTLY a towing vessel made a voyage with a tow to Cristobal, Canal Zone, and return to the United States, without the crew having signed on shipping articles before a shipping commissioner. The vessel was cited for failure to comply with 46 U. S. C. 565 (Rev. Stat. 4512), which together with 46 U. S. C. 564 (Rev. Stat. 4511, as amended) requires that the articles for voyages between a port in the United States and any foreign port be signed by the crew before a shipping commissioner.

In response to a request for an opinion, the chief counsel of the Coast Guard stated as follows:

"It has been said that the Canal Zone is treated by law as a foreign country except to the extent that a statute may expressly provide that it shall be treated as an organized territory. 91 C. J. S. 8. Support for this proposition may be found in *Luckenbach SS. Co. v. United States*, 280 U. S. 173, 180, wherein the Supreme Court held that ports of the Canal Zone are foreign ports for the purposes of the statute (Rev. Stat. 4009; 39 U. S. C. 654) dealing with compensation allowable for transportation of mail by United States ships between the United States and 'any foreign port.' Actually, a review of the cases and opinions on the status of the Canal Zone reflects inevitable confusion. (See 43 Harvard Law Review and cases cited therein.) The only clear conclusion that can be reached is to the effect that owing to the peculiar uncertainty of the Canal Zone's status, the statutes should be applied to it in accordance with the purpose of the particular act. It is obvious that the statutes in question here were

impossible to "foresee" a weakness in the faulty rung, but it points up the positive necessity for frequent and thorough examinations of all hold access ladders.

Ladders that are fitted in an exposed position like the one illustrated must be safe and ready for use or they are a potential accident maker. In most installations the ladders are bolted to brackets with the rungs welded in place. It is here that a close examination must be made. Assure yourself that a sling-load of cargo hasn't "sprung" the weld between the rung and the side of the ladder. It is sometimes possible that the weld can be pulled loose and leave the rung resting in the weld fillet—a real hazard.

designed for the protection of seamen. Certainly there is greater protection for seamen where the articles are signed under the supervision of a shipping commissioner or his deputy. This being the general purpose and effect of the law, and there being no express exceptions of Canal Zone ports from Rev. Stat. 4511, it is our opinion that for the purposes of the law in question the Canal Zone ports may be treated as foreign ports.

"There is for consideration the general principle of law so frequently announced by the Supreme Court that where the language of a statute is dubious and open to different interpretations, the established construction of it by the department of the government charged with its execution will have very great force, and generally a controlling one, in an interpretation given by the court. *St. Paul, M. & M. R. Co. v. Phelps*, 137 U. S. 528. Inquiry by this office indicates that ports in the Canal Zone have been considered as 'foreign ports' by the shipping commissioners in New York for a long period of time. Being a major port of the United States this fact of interpretation is persuasive, although not necessarily controlling. For example, it is noted that the Panama R. R. Co. vessel, SS *Ancon*, customarily utilizes the services of a shipping commissioner. It is conceded that this fact is not controlling since such signing of the articles might be under the permissive authority of 46 U. S. C. 563 rather than the mandatory requirements of 46 U. S. C. 564. However, it is emphasized that a conclusion that the Canal Zone ports are 'foreign ports' is consistent with past rulings of other agencies with respect to statutes related to importation, immigration, and ocean transportation. *Luckenbach SS Co. v. United States*, *supra*. As stated by the Comptroller General in 5 Comp. Gen. 647, 'It appears * * * that Congress has generally treated the Canal Zone as "foreign" to the United States, any exception to that general rule being for specific purposes only.' It is apparent that Congress throughout the years has not seen fit to add to the list of exceptions stated in 46 U. S. C. 564.

"It is the final conclusion of this office that unless there is clear evidence * * * that Canal Zone ports have been treated otherwise, such ports are 'foreign ports' for the purposes of administering the statutes relating to the utilization of the services of a shipping commissioner in the signing of the articles."

HEAD TO HEAD

(Continued from page 157)

the sperm-oil standard with a required range and masthead light of 5 miles. The range lights came into the International Rules as optional equipment until the 1948 Convention. They present a neglected opportunity to improve the candlepower standard of the white lights with an improved binocular discrimination of difference in distance. Even here without radar and with range lights and clear visibility, it was "impossible to determine within a few degrees the precise bearing of an approaching vessel." Smith, T. W., *Rules of the Road*, 1910, p. 136.

With radar the British studies show the error in a single bearing on the outer half of a gyro-stabilized PPI is plus or minus $1\frac{1}{2}^\circ$ on true presentation and plus or minus $2\frac{1}{2}^\circ$ on relative. (*10 Journ. Inst. Nav.*, 193.)

VISION IS BEST

Once visual contact is made, vision is 30 times better than radar on azimuth resolving power (Isbister, E. J., *R. T. C. M.*, Boston, 1964); besides, the observer gets the aspect or attitude of the other vessel and inputs his experience with similar aspects in the same waters. The sequence is from radar to vision; and when it is too thick for vision at the CPA, there is no time for plotting.

Working backwards, the closest point of approach safety zone, usually 3 miles, sometimes 5 miles, is the master's judgment as to how much clear water he needs to do defensive driving and avoid other vessels at sea. It sometimes appears in the Night Order Book as "CALL me if another ship comes within 3 miles." Whenever it is too thick to have visual contact at the CPA zone, a prior plot of the other vessel's course and speed is an item that no mariner would choose to do without. Even with a prior plot, the other vessel changing her course to avoid yours may make your plot misleading.

In the meeting situation before radar, we had initial misappraisal of the other ship's course, further improved by changes to right and left, respectively, sometimes topped by a last-minute reversal which resulted in a right-angle bow to midships collision. This was termed the "collision waltz" by one of my departed preceptors.

With radar on relative and with reliance upon bearings which are about $2\frac{1}{2}^\circ$ either way, the old "collision waltz" comes much more easily.

Nor does it help to reduce speed in these passings by radar alone when there is no expectation of visual contact short of actual impact. Two

MSTS ships in a Puget Sound fog is one case I use on my old safe-and-sane, slow-her-down friends. The inbound ship was on radar true when she picked up her pilot who promptly switched to relative. The outbound ship was on relative, and the pilot was using the PPI as a map to get out the dogleg channel. Which pilot first got out of his regular route cannot now be settled, but the outbound ship reduced speed with a following current, and whatever plans they might have had to fumble by were knocked galley west.

FOG RULES

With our present fog rules, it is not easy to find mariners who admit that they pass in dense fog, and we lack examples of how to do it skillfully. One way that came up by mistake was shown by two Virginia ferries which were using magnetic compasses and radar (like the *St. Lawrence* in the Saguenay case). It was dense fog on a weekend; both were equipped with radiotelephones and had identified each other. One had used his radio to talk to a third ferry but not to the one closest. Each lost the pip within minimum range and was blind until just before they hit (A lost pip at one quarter mile, made visual at 100 feet; N lost pip at one-half mile, made visual at 100 yards). Both used bearing markers but neither plotted. These bearings were, of course, on a magnetic compass with a deckload of autos; the plus or minus must have been well above $2\frac{1}{2}^\circ$ each.

We need from those of you who work in the field of vision more information on how radar observers work; on how ship pilots use the information; and on the effect of the radar PPI scope on the way the operator locates himself and the other vessel in time and space. We have been greatly aided by the Canadian work, especially *Baker & Thornton* on Factors Affecting Radar Operators, and have used before courts the Navy work of *Williams & Bartlett*, on Visibility on Cathode Ray Tubes (*25 Journ. Psych.* 401), and *Morgan* on Theory and Problems of Radar Visibility (*1952 N. R. L. No. 3965*).

The courts try to decide these cases on the best scientific knowledge made available to them. We could use more declassified information in book form which a judge can take home and read at night. Then we need more experiments conducted by the deck officers who are going to use the equipment, rather than the graduate student who is often used as an observer.

In my own work I have found the control tower operator reports are very stimulating. The operators must do it in their heads, and if professional airport men can't handle eight

aircraft at different speeds without collisions, it is not fair to expect a mariner to be able to keep track of all the pips which are off the approaches to our big ports.

You will recognize that this problem is the one on Abilities and Limitations of Normal Man, which was discussed by Max Lund of the Office of Naval Research in January 1957, and also involves the limitations on the information which the normal man can process which are summarized in Miller, "The Magical Number Seven, Plus or Minus Two; Some Limits on our Capacity for Processing Information" (*63 Psych. Rev.* 81). The problem involves human factors; it involves a psychological description of ship handling which is as good as the study of airplane piloting by the Bureau of Aeronautics.* When it comes to the study of human factors or human engineering, we have a beautiful field for work. This is an old, settled profession with narrow real issues on how to pass each other which have been radically changed by a revolutionary way to "see" the world; where the machine must act through the man and where it also changes the man's own old visual appraisal, sometimes for the worse.

There is no study I have been able to find of what happens when the observer shifts from viewing the area on PPI to actual vision, or back again. All of us agree that there is a difference and that we feel a mental strain and some resistance; but you have changed the way we locate ourselves in time and space and have not yet explained how this has changed man himself.

TIMELY ACTION

Notification has been received at Coast Guard Headquarters of the timely and seamanlike actions of the crew aboard the *SS Lucille Bloomfield* in La Pallice, France.

Roused from a sound sleep at 2:30 in the morning by the ringing of the general alarm bells, the crew of this Bloomfield Steamship Co. ship had a completely manned motor lifeboat waterborne and underway in 11 minutes searching for an apparently drowning person.

Though the rescue attempt was unsuccessful, the *Proceedings* is pleased to note the alertness and well-trained competence of the master and crew of the *SS Lucille Bloomfield* which responded in an emergency situation in the best traditions of the American merchant marine.

*The Human Pilot; Navy BuAer Report AE-61-4 (1954).

APPENDIX

AMENDMENTS TO REGULATIONS

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

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

Subchapter B—Merchant Marine Officers and Seamen

[CGFR 57-39]

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

DECK OFFICERS FOR VESSELS IN MINERAL AND OIL INDUSTRIES

Notices regarding proposed changes in the navigation and vessel inspection regulations were published in the Federal Register dated March 7, 1957 (22 F. R. 1433-1439), March 28, 1957 (22 F. R. 2047), and May 4, 1957 (22 F. R. 3185, 3186), as Items I through XVIII of the Agenda to be considered by the Merchant Marine Council. Pursuant to these notices a public hearing was held on May 7, 1957, by the Merchant Marine Council at Washington, D. C. This document is the ninth of a series covering the regulations considered at this public hearing. The first document (CGFR 57-26) deals with inspection of cargo gear on passenger, cargo, and miscellaneous vessels. The second document (CGFR 57-27) deals with life-saving, fire protection, and grain loading requirements for passenger, cargo, and miscellaneous vessels. The third document (CGFR 57-29) deals with cargo tanks for liquefied inflammable gases and anhydrous ammonia, stowage of baled cotton, and use of equivalents or alternative procedures respecting dangerous cargoes. The fourth document (CGFR 57-30) deals with crew accommodations on tank ships. The fifth document (CGFR 57-31) deals with drydocking of passenger, tank, cargo, and miscellaneous vessels. The sixth document (CGFR 57-32) deals with the first assistant engineer of vessels not over 2,000 horsepower and examination of lifeboatmen and able seamen. The seventh document (CGFR 57-33) deals with miscellaneous amend-

ments respecting dangerous cargoes, and is being processed for printing. The eighth document (CGFR 57-36) deals with structural fire protection for passenger vessels.

All the comments, views, and data submitted in connection with the items considered by the Merchant Marine Council at this public hearing have been very helpful to the Coast Guard and are very much appreciated. On the basis of the information received certain proposed regulations were revised. With respect to Item I—Deck Licenses as Master and Chief Mate for Vessels Engaged in Offshore Mineral and Oil Industry, changes were made in 46 CFR 10.05-5 (b), 10.05-28, and in Table 10.05-45 (b). The revised regulations establish requirements for applicants to obtain licenses as masters and mates of motor vessels of not more than 300 gross tons when operated in connection with the offshore mineral and oil industries. These licenses will be limited to a stated distance offshore on the continental shelf of the Atlantic and Pacific Coasts of the United States or the Coast of the Gulf of Mexico as determined by the Commander of the district in which the license is issued.

By virtue of the authority vested in me as Commandant, United States Coast Guard by Treasury Department Order No. 120, dated July 31, 1950 (15 F. R. 6521), Treasury Department Order 167-14, dated November 26, 1954 (19 F. R. 8026), and Treasury Department Order CGFR 56-28, dated July 24, 1956 (21 F. R. 5659), to promulgate regulations in accordance with the statutes cited with the regulations below, the following amendments are prescribed and shall become effective thirty days after the date of publication of this document in the Federal Register.

(Federal Register of Saturday, August 24, 1957)

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 3-57

June 27, 1957

Subject: Combination Solid Stream and Water Spray Fire Hose Nozzles.

1. *Purpose.* The purpose of this circular is to provide the information necessary to secure uniformity in the installation of the subject type nozzles, and component and auxiliary parts, on merchant vessels.

2. *Background.* Many of the subject nozzles of navy type were installed voluntarily on merchant vessels during World War II to provide greater flexibility and effectiveness in fighting fire. Since 19 November 1952, 46 C. F. R. 34.10-35, 76.10-10, and 95.10-10 have contained provisions for combination nozzles, and

specification Subpart 162.027 containing detailed requirements as to the construction and performance of these nozzles was published in the Federal Register dated 5 December 1953. The orifice holes in the spray heads of the Navy types of combination nozzles were small and sometimes might become clogged by scale, rust, and foreign material drawn into the fire main, and thus strainers were used to assure effective operation. The models which have been approved under the provisions of specification Subpart 162.027 incorporate special designs of spray heads which permit comparatively large orifice openings, and thus neither self-cleaning line strainers nor built-in self-cleaning strainers are required.

3. *Discussion.* Combination nozzles approved under the specification are now available to ship owners and operators, and this information should be widely known in order that there will be no delay in utilizing them for all new installations. Also, requests have been received from several ship owners for permission to fit the new high- and low-velocity spray heads having large orifice openings to the bodies and applicators of their existing combination nozzles which were installed on board during the former "acceptable" program, and thus eliminate the need for strainers and further standardize on the new spray heads for all combination nozzles on the ship.

4. *Combination Nozzles Required or Permitted.*

(a) *New Installations.* New installations or replacements of combination nozzles shall be of approved type as required by 46 C. F. R. 34.10-35, 76.10-10 and 95.10-10. The following combination nozzles have been approved for such requirements under specification Subpart 162.027:

Rockwood Sprinkler Co., Worcester, Mass: Rockwood 1½" SG70 combination solid stream and water spray fire hose nozzle, 1½" Type TCG high-velocity head, and either 10°-90° Type CG applicator or 4°-60° Type CG applicator with Type T-11A low-velocity head; and

Rockwood 2½" SG70 combination solid stream and water spray fire hose nozzle, 2½" Type TCG high-velocity head, and 12°-90° Type CG applicator with Type T-10A low-velocity head.

Akron Brass Manufacturing Co., Inc., Wooster, Ohio: 1½" Model CG 15 combination solid stream and water spray fire hose nozzle, Style HV 15 high-velocity head, and either Style 1015 10°-90° applicator or Style 415 4°-60° applicator with Style LV 15 low-velocity head; and

2½" Model CG 25 combination solid stream and water spray fire hose nozzle, Style HV 25 high-velocity

THE LOGBOOK

(Continued from page 162)

head, and Style 1225 12'-90° applicator with Style LV 25 low-velocity head.

NOTE 1: The 1½" 4'-60° applicators are intended for 1½" combination nozzles fitted in propulsion machinery spaces containing oil-fired boilers, internal combustion machinery, or oil fuel units.

NOTE 2: Due to orifice sizes, neither self-cleaning line strainers nor internal strainers are required.

(b) *Existing Installations.* The following combination solid stream and water spray fire hose nozzles were formerly accepted pending development and adoption of the new designs, and those which were installed on vessels prior to approval of combination nozzles under specification Subpart 162.027 may be continued in use so long as in good and serviceable condition:

Rockwood Sprinkler Co., Worcester, Mass.: Types SG-40 or SG-47*

Akron Brass Manufacturing Co., Inc., Wooster, Ohio: Fognozl 4-AN or 4-NAP*

(c) *Use of New High- and Low-Velocity Spray Heads With Existing Nozzle Bodies and Applicators.* Under 46 C. F. R. 34.01-5, 78.33-10, and

*Self-cleaning line strainers are required with these nozzles, unless fitted with internal self-cleaning strainers.

15 YEARS AGO:

Secretary of the Navy Frank Knox has delegated control of state pilotage to the Commandant of the Coast Guard. Present-day operating conditions have thrown increased responsibilities upon the individual pilots and created a situation where Federal control is required.

* * *

Yachtsmen and other owners and operators of motorboats must now apply to district offices of the United States Coast Guard to secure the assignment of the numbers which are conspicuously painted upon their bows, under the provisions of a new amendment to the Motorboat Regulations.

* * *

The newly established Merchant Marine Council held its first formal meeting at Coast Guard Headquarters in Washington, D. C. The meeting was attended by representatives of various phases of merchant marine activities and its kindred industries, and leaders of seamen's unions, all of whom acted as a panel of consultants. Items discussed included the adequacy of present safety regulations and their enforcement for the protection of seamen in wartime, and further wartime safety measures for the protection of life and property on merchant vessels of the United States.

97.30-10, when satisfactory to the officer in charge, marine inspection, the high- and low-velocity heads comprising component parts of the approved nozzles listed in paragraph 4 (a) may be fitted as replacements in the existing nozzle bodies and applicators listed in paragraph 4 (b) under the following conditions:

(1) The existing nozzle bodies and applicators shall be in good and serviceable condition.

(2) The strainer in the inlet port of the nozzle, and the strainer in way of the outlet port of the applicator shall be removed; and the self-cleaning line strainer may be removed if desired by the owner.

H. T. JEWELL
Rear Admiral, USCG
Chief, Office of Merchant
Marine Safety.

By direction of the Commandant.

ACCEPTABLE HYDRAULIC CAST IRON VALVES

Hydraulic cast-iron valves gasket mounted which have passed high shock tests and accepted under provision of 46 CFR 55.07-1 (e) (3).

Manufacturer	Valve type	Model	Drawing No.
Vickers, Inc., Division of Sperry-Rand Co., Detroit 32, Mich.	Solenoid-operated 4-way pilot	DG4S4-012A-20	R131806
Do.	Pressure control	RGO 3Z4-10	R133101
Do.	Manual 2-way pilot	DG1S2-012A-20	1161174

ACCEPTABLE COVERED STEEL ARC WELDING ELECTRODES

The following are additions to the list of electrodes which are acceptable to the United States Coast Guard for use in welded fabrications.

Distributor and/or manufacturer	Brand	AWS class	Operating positions and electrode sizes (inch)				
			½ and below	⅜	½	¾	1
Air Reduction Sales Co., 42d St. opposite Grand Central, New York 17, N. Y.	Airco 90-B	E6013					2
Do.	Easyarc 14	E6013					2
General Electric Co., Schenectady 5, N. Y.	W-613-B	E6013					2
Do.	Strikeasy 614	E6013					2
Metal & Thermit Co., 120 Broadway, New York 5, N. Y. (Arcrods Corp., manufacturer)	Murex Type U-13	E6013					2
Do.	Speedex U	E6013					2

CASUALTIES TO VESSELS—FISCAL YEAR 1957

(1 July 1956—30 June 1957)

	Groundings and founderings	Collisions with other vessels	Collisions with mis- cellaneous objects	Fires and explosions	Heavy weather and material damage	Damage to lifesaving equipment	Totals
Number of casualties.....	690	311	298	232	195	23	1,749
Number of vessels involved.....	706	750	324	249	195	23	2,247
Gross tonnage of U. S. merchant vessels involved.....	2,144,732	1,751,031	1,546,325	449,948	1,454,974	187,882	7,534,890
Number of inspected vessels involved.....	279	240	215	88	188	28	1,012
Number of uninspected vessels involved.....	427	501	109	191	7	0	1,235
Type of vessels involved:							
Passenger.....	14	10	14	8	4	1	51
Freight.....	188	125	162	43	121	19	658
Tank vessels.....	96	103	51	21	44	2	317
Public vessels.....	6	1	1	1	11	1	44
Ferry.....	13	13	1	2	6	0	35
Towing.....	52	176	49	23	5	0	395
Fishing.....	113	38	9	50	1	0	211
Foreign flag.....	0	93	0	0	0	0	93
Miscellaneous.....	224	108	37	101	3	0	533
Persons on board:							
Passengers.....	1,169	2,110	3,093	338	1,201	334	8,245
Crew.....	11,539	11,325	9,533	2,609	8,377	1,158	44,544
Shoreworkers.....	148	13	64	285	53	44	611
Value of property lost or damaged:							
Vessels.....	\$12,520,849	\$14,480,624	\$3,342,320	\$6,429,814	\$2,665,441	\$90,300	\$39,529,408
Cargoes.....	\$1,493,808	\$594,600	\$935,792	\$2,568,600	\$443,730	0	\$6,036,330
Vessels with damage unreported.....	26	58	18	15	8	1	125
Cargoes with damage unreported.....	27	58	18	16	8	1	128
Vessels totally lost:							
Inspected.....	5	3	0	0	0	0	8
Gross tonnage.....	8,905	16,487	0	0	0	0	25,392
Uninspected.....	164	21	2	123	0	0	310
Gross tonnage.....	9,834	6,298	13	2,231	0	0	18,376
Number of casualties due to personnel faults:							
Employed under license or certificate.....	22	20	2	2	9	1	56
Others.....	62	95	8	16	0	0	181
Lives lost in casualties:							
Passengers—							
Off inspected vessels.....	0	0	1	0	0	0	1
Off uninspected vessels.....	123	3	2	10	0	0	138
Crew—							
Off inspected vessels.....	32	10	0	5	0	0	47
Off uninspected vessels.....	115	12	12	14	1	0	154
Shoreworkers—							
Off inspected vessels.....	1	0	0	10	0	0	11
Off uninspected vessels.....	6	0	0	1	0	0	7
Assistance rendered by U. S. Coast Guard.....	122	27	13	50	17	0	229

Deaths not involving casualty to vessel:

Passengers.....	72
Crew.....	358
Shoreworkers.....	37

Injuries to personnel not involving casualty to vessel:

Number of personnel incapacitated for more than 72 hours..... 1,483

ACCEPTABLE COVERED STEEL ARC WELDING ELECTRODES

The following are additions to the list of electrodes which are acceptable to the United States Coast Guard for use in welded fabrications.

Distributor and/or manufacturer	Brand	AWS class	Operating positions and electrode sizes (inch)				
			$\frac{3}{32}$ and below	$\frac{3}{16}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{16}$
Air Reduction Sales Co., 42d Street, opposite Grand Central, New York 17, N. Y.	Aircro 90-B.....	E6013	1	1	2	2	-----
Do.....	Easyarc 10.....	E6010	1	1	-----	-----	-----
General Electric Co., Schenectady 5, N. Y.	GE W-613-D.....	E6013	1	1	2	2	-----
Do.....	Strikensy 10.....	E6010	1	1	-----	-----	-----
Harnischfeger Corp., 4400 West National Ave., Milwaukee, Wis.	170-LA.....	E6016	1	2	2	2	3
Do.....	AP-100.....	E6013	1	1	2	2	-----
Marquette Manufacturing Co., Inc., 370 East Hennepin Ave., Minneapolis, Minn.	No. 105.....	E6010	1	1	2	2	-----
Do.....	No. 130.....	E6011	1	1	2	2	-----
Do.....	No. 120.....	E6012	1	1	2	2	-----
Do.....	No. 140.....	E6013	1	1	2	2	-----
Do.....	No. 12.....	E6024	2	2	2	2	-----
Metal & Thermit Corp., 120 Broadway, New York 5, N. Y. (Arcrods Corp., manufacturer.)	Murex Type U-13.....	E6013	1	1	2	2	-----
Do.....	Murex Speedex R.....	E6010	1	1	-----	-----	-----
Reld-Avery Co., Inc., Baltimore 22, Md.	Raco 11 Iron Powder.....	E6011	1	1	2	2	3
Westinghouse Electric Corp., East Pittsburgh, Pa.	Westinghouse SW2M-613.....	E6013	1	1	2	2	3

EQUIPMENT APPROVED BY THE COMMANDANT

[EDITOR'S NOTE.—Due to space limitations, it is not possible to publish the documents regarding approvals and terminations of approvals of equipment published in the Federal Register dated August 3, 1957 (CGFR 57-37)-(CGFR 57-38). Copies of these documents may be obtained from the Superintendent of Documents, Washington 25, D. C.]

ARTICLES OF SHIPS' STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from 1 August to 31 August 1957, inclusive, for use on board vessels in accordance with the provisions of Part 147 of the regulations governing "Explosives or Other Dangerous Articles on Board Vessels," are as follows:

CERTIFIED

The Clarkson Labs. Inc., 920-930 North Darien St., Philadelphia 23, Pa., Certificate No. 160, dated 5 August 1957, MULSIFOR.

Commercial Products Co., 11 Pater-son Ave., Midland Park, N. J., Certificate No. 172, dated 15 August 1957, DISPERSITE-M.

AFFIDAVITS

The following affidavits were accepted during the period from 15 July 1957 to 15 August 1957:

August Spindler & Sons, Inc., corner Mercer and Colgate Sts., Jersey City 2, New Jersey, VALVES.

Leo Gottwald K. G., Hattingen/Ruhr, Westphalia, Germany, PIPE FITTINGS AND FLANGES.

Alley & Maclellan, Ltd., Worcester, England, VALVES.

FUSIBLE PLUGS

The regulations prescribed in Subpart 162.014, Subchapter Q, Specifications, require that manufacturers submit samples from each heat of fusible plugs for test prior to plugs manufactured from the heat being used on vessels subject to inspection by the Coast Guard. A list of approved heats which have been tested and found acceptable during the period from 15 July 1957 to 15 August 1957 is as follows:

The Lunkenheimer Co., Cincinnati 14, Ohio. Heat Nos. 562 and 563.



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, except for cost publications which may be obtained upon application to the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Date of each publication is indicated following title.

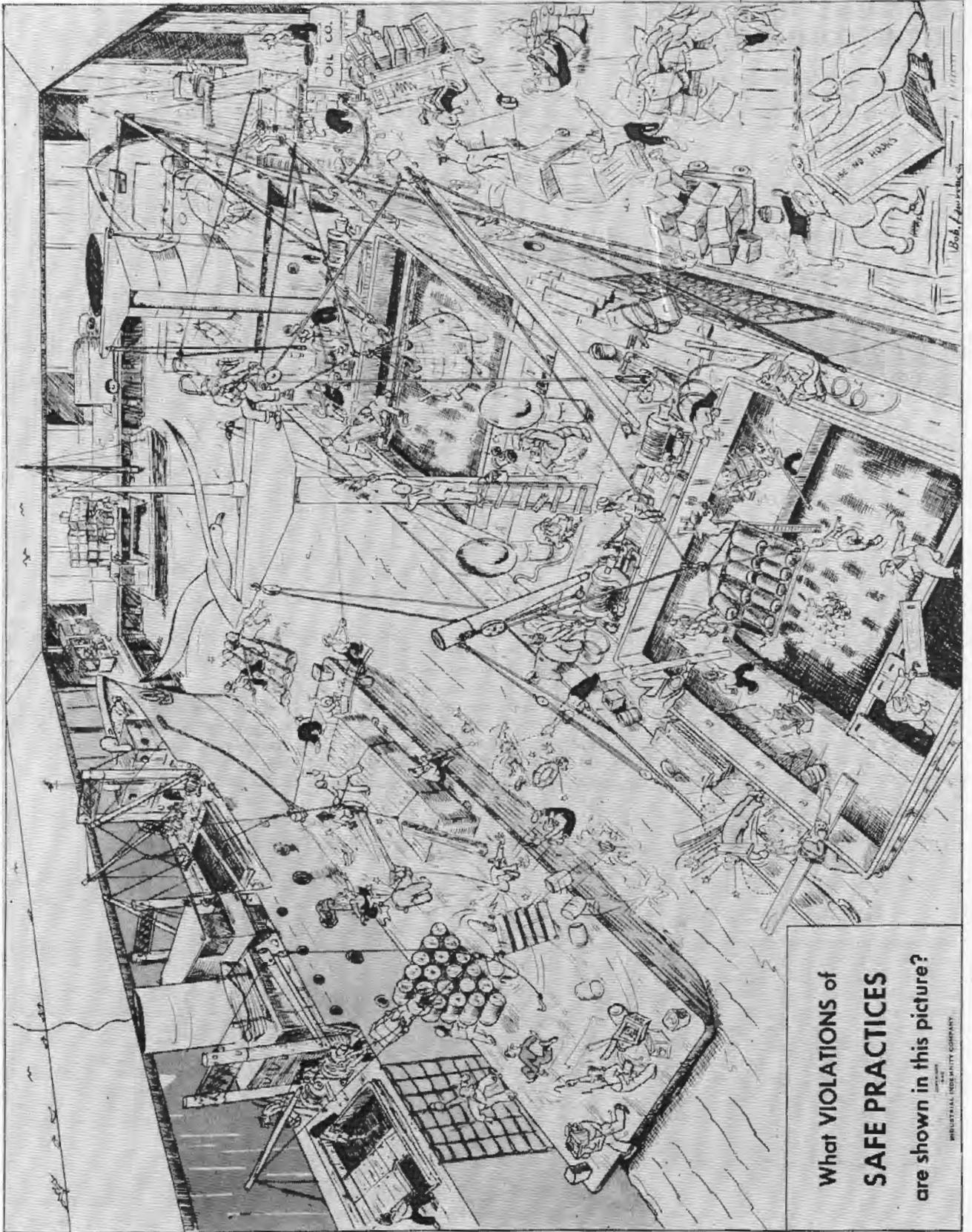
CG No.	Title of Publication
101	Specimen Examinations for Merchant Marine Deck Officers. 1-50
108	Rules and Regulations for Military Explosives. 5-15-54
115	Marine Engineering Regulations and Material Specifications. 3-1-56
118	Overtime Services. 8-46
123	Rules and Regulations for Tank Vessels. 10-1-56
129	Proceedings of the Merchant Marine Council.
169	Motorboat safety. 1957 Monthly Rules to Prevent Collisions of Vessels and Pilot Rules for Certain Inland Waters of the Atlantic and Pacific Coasts and of the Coast of the Gulf of Mexico. 1-2-57
172	Pilot Rules for the Great Lakes and Their Connecting and Tributary Waters. 7-1-57
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. 3-5-54
176	Load Line Regulations. 11-1-53
182	Specimen Examinations for Merchant Marine Engineer Licenses. 5-1-57
184	Pilot Rules for the Western Rivers. 7-1-57
187	Explosives or Other Dangerous Articles on Board Vessels. 7-1-54 (Cost Pub. \$2.50 from GPO)
190	Equipment Lists. 3-1-56
191	Rules and Regulations for Licensing and Certifying of Merchant Marine Personnel. 9-15-55
200	Marine Investigation Regulations and Suspension and Revocation Proceedings. 4-13-53
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. 6-16-52
249	Merchant Marine Council Public Hearing Agenda. Annually
256	Rules and Regulations for Passenger Vessels. 3-1-57
257	Rules and Regulations for Cargo and Miscellaneous Vessels. 6-1-55
258	Rules and Regulations for Uninspected Vessels. 7-1-55
259	Electrical Engineering Regulations. 6-1-55
266	Rules and Regulations for Bulk Grain Cargo. 2-13-53
267	Rules and Regulations for Numbering Undocumented Vessels. 1-15-53
268	Rules and Regulations for Manning of Vessels. 11-19-52
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	Motorboats. 4-15-57
293	Miscellaneous Electrical Equipment List. 2-1-57
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf. 1-2-57

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 \$15.00 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 1957

The following have been modified by Federal Registers:

- CG-190 Federal Register August 3, and August 31, 1957; 20 and 25 cents.
- CG-256 Federal Register August 2, 1957.
- CG-191 Federal Register August 24, 1957.



What **VIOLATIONS** of
SAFE PRACTICES
are shown in this picture?

INDUSTRIAL SAFETY COMPANY