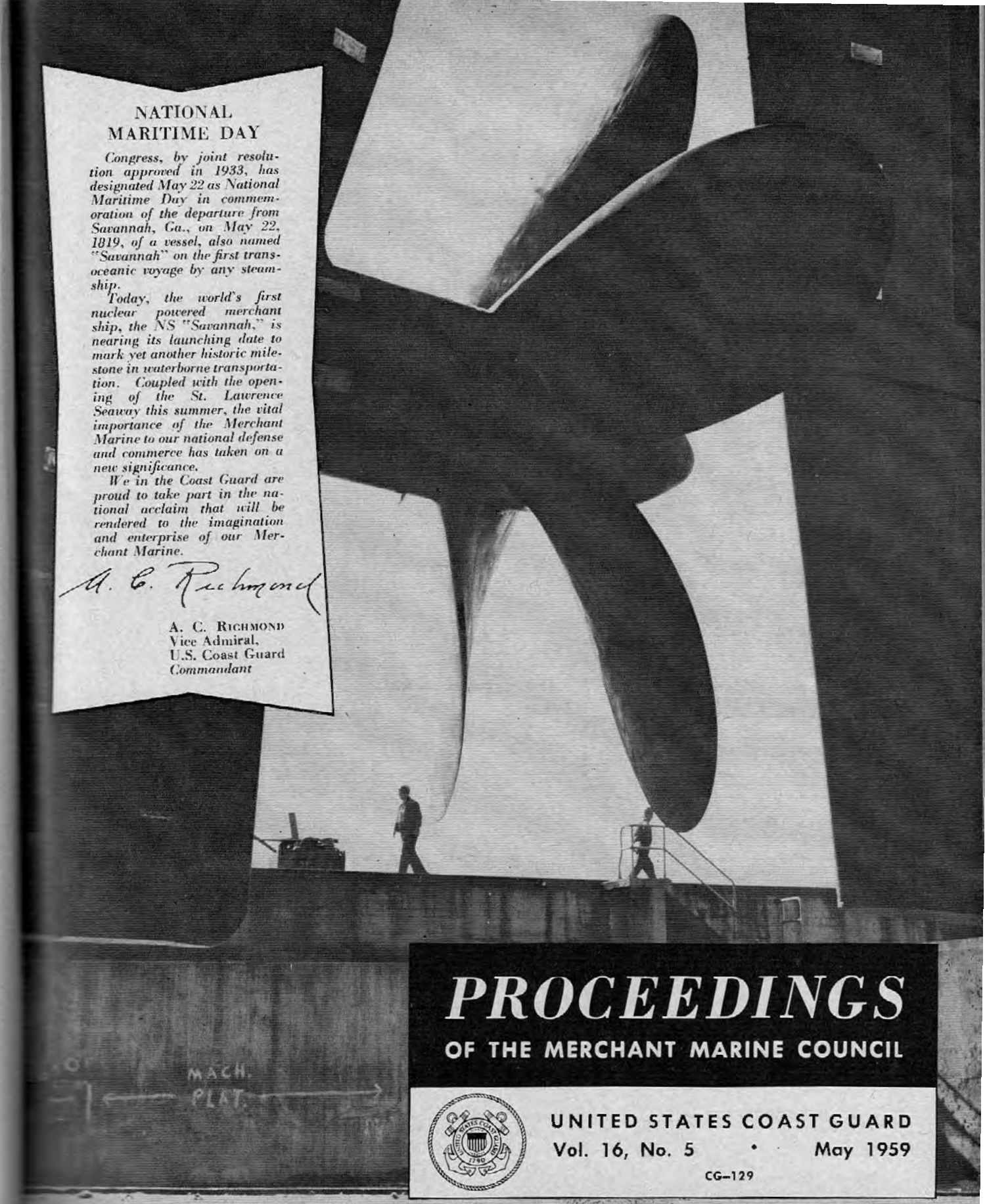

NATIONAL MARITIME DAY

Congress, by joint resolution approved in 1933, has designated May 22 as National Maritime Day in commemoration of the departure from Savannah, Ga., on May 22, 1819, of a vessel, also named "Savannah" on the first transoceanic voyage by any steamship.

Today, the world's first nuclear powered merchant ship, the NS "Savannah," is nearing its launching date to mark yet another historic milestone in waterborne transportation. Coupled with the opening of the St. Lawrence Seaway this summer, the vital importance of the Merchant Marine to our national defense and commerce has taken on a new significance.

We in the Coast Guard are proud to take part in the national acclaim that will be rendered to the imagination and enterprise of our Merchant Marine.

A. C. Richmond

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

PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

UNITED STATES COAST GUARD
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PROCEEDINGS
OF THE
MERCHANT MARINE COUNCIL

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FRONT COVER

Shipyard workers walking under the SS *Brighton's* 22-ton screw provide a scale for judging the size of the 46,000-ton tanker. *Photo Courtesy of Texaco.*

BACK COVER

Some good safety advice. *Courtesy Isthmian Lines Safety Bulletin.*

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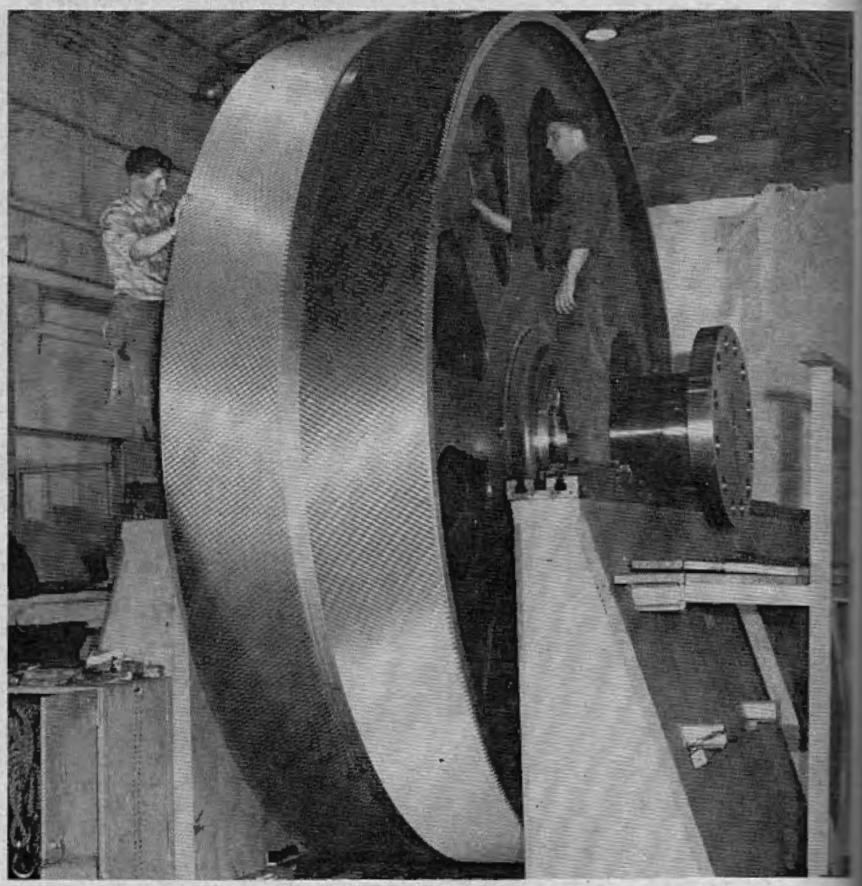


BULL GEAR for the world's first nuclear-powered merchant ship is pictured nearing completion at the De Laval Steam Turbine Co. plant in Trenton, N.J. The 70,000-pound main drive gear for the NS *Savannah* measures 176 inches in diameter and 48 inches across the gear face. The herring bone pattern is made up of 583 gear teeth which will deliver power to the ship's single propeller.

1958 NATIONAL SAFETY COUNCIL WINNERS

COMBINED EFFORTS of labor, industry, and Government to make our merchant ships a safer place to live and work are paying off!

Annual statistics released by the Marine Section, National Safety Council, for 1958 show a walloping 19-percent decrease in shipboard accidents aboard cargo and passenger ships and a sizable 7-percent decrease on tank ships.

Safest privately operated seagoing ships under the American flag are those of the Atlantic Refining Co. with an overall average frequency rate of 0.92 in the tanker division and the Alcoa Steamship Co. with 2.94 to lead the cargo and passenger ship fleets.

In other categories, inland cargo and passenger vessels showed a rise from a frequency rate of 3.25 to 3.82, but were led by the Marine Department, Ford Motor Co., with a perfect record for the year.

Inland tankers showed the biggest single decrease with a tremendous 36 percent improvement in reportable accidents. First place in this division was a three-way tie between Standard Oil Co. of Indiana, Sun Oil Co., and the Texas Co., all with perfect accident-free slates.

Class A Government ships suffered a 21-percent increase in reportable accidents, but still finished with a fine overall rate of 3.27.

Alcoa, runner-up in 1957, recently awarded a movie projector to the SS *Alcoa Roamer* for 715 consecutive days without a lost-time accident. The company makes this award to any of their vessels who run 500 days without an accident.

An idea of the competition for awards in this annual contest is seen in the figures for other places in the cargo and passenger ship category. United States Lines Co. won second place over the United Fruit Co. by a mere two-hundredths of a point.

The three top tanker companies during 1958 all topped the winning fleet for the year before—a truly remarkable record.

On the basis of all contestants, which includes commercial and Government shipbuilding and repair yards, harbor equipment, barge and towing vessels, and stevedoring companies, the highlights of the 1958 contest are:

- Number of contestants completing contest, 135.
- Number of perfect records at end of 12 months, 20.
- Total number of man-hours worked, 304,926,000.
- Total number of injuries, 1,658.
- Percent decrease in injuries compared with 1957, 11.
- Percent decrease in final rate compared with 1957, 7.

Following is a list of the final standings and rates in all categories:

SHIPBUILDING AND REPAIR

PRIVATE YARDS (HEAVY)

Average Rate, 8.51

1—General Dynamics Co., Electric Boat Div., Groton, Conn., 1.77.

2—Dravo Corp., Pittsburgh, Pa., 3.43.

3—Bethlehem Steel, Beaumont, Texas, 4.70.

PRIVATE YARDS (LIGHT)

Average Rate, 13.52

Tie for first between U. S. Steel Corp., Clairton, Pa.; The Pittsburgh & Conneaut Dock Co., Conneaut, Ohio; and the Ashland Oil & Refining Co., Catlettsburg, Ky., all with perfect accident-free records.

GOVERNMENT YARDS (GROUP A)

Average Rate, 1.84

1—San Francisco Naval Shipyard, San Francisco, 0.74.

2—Puget Sound Navy Shipyard, Bremerton, Wash., 0.81.

3—U.S. Naval Shipyard, Phila., Pa., 0.88.

GOVERNMENT YARDS (GROUP B)

1—Corps of Engineers, North Central Division, 0.00.

2—U.S. Coast Guard Yard, Curtis Bay, Md., 0.69.

3—Corps of Engineers, Ohio River Div., 2.99.

STEVEDORING

BULK CARGO

Average Rate, 5.39

A four-way tie for first between the Pittsburgh & Conneaut Dock Co., Conneaut, Ohio; Ohio & Western Pennsylvania Dock Co., Cleveland, Ohio; Union Dock Co., Ashtabula Harbor, Ohio; and The Toledo, Lorain & Fairport Dock Co., Lorain, Ohio, all with perfect accident-free records.

GENERAL CARGO

Average Rate, 40.51

1—Kauai Consolidated Terminals, Ltd., Lihue, Kauai, 4.09.

2—Hilo Transportation and Terminal Co., Hilo, Hawaii, 14.86.

3—Kahului Railroad Co., Kahului, Maui, 22.11.

CARGO AND PASSENGER VESSELS

OCEAN AND COASTWISE

Average Rate, 5.89

1—Alcoa Steamship Co., Mobile, Ala., 2.94.

2—United States Lines Co., New York, 3.63.

3—United Fruit Co., New York, 3.65.

INLAND

Average Rate, 3.82

1—Ford Motor Co., Marine Dept., Dearborn, Mich., 0.00.

2—The Cleveland-Cliffs Iron Co., Cleveland, Ohio, 0.58.

3—The Interlake Steamship Co., Cleveland, Ohio, 0.93.

GOVERNMENT, CLASS A

Average Rate, 3.27

1—MSTS, Mid-Pacific Sub Area, 2.72.

2—MSTS, North Pacific Sub Area, 2.85.

3—MSTS, Pacific Area, 2.97.

TANKERS

OCEAN AND COASTWISE

Average Rate, 2.77

1—The Atlantic Refining Co., Fort Miffin, Pa., 0.92.

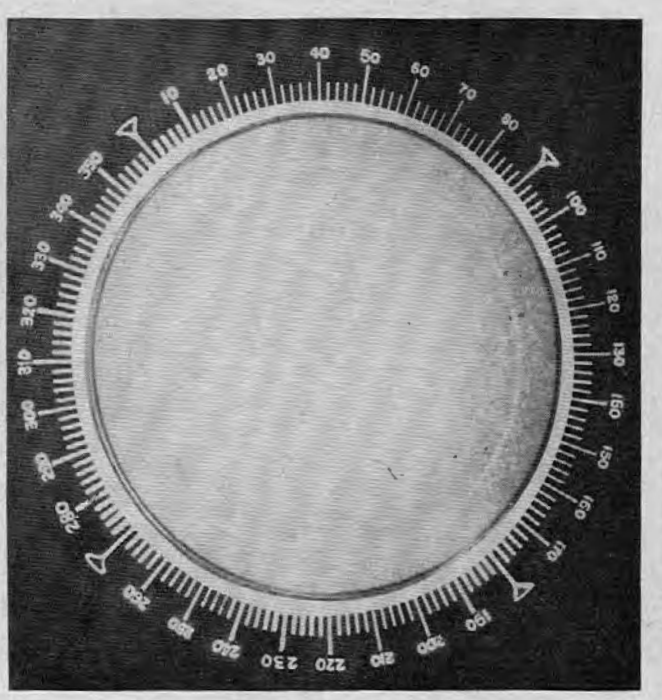
2—The Texas Co., Ocean Fleet, N.Y., 1.46.

3—Socony-Mobil Oil Co., New York, 1.74.

Continued on page 102

INTERNATIONAL ICE PATROL STUDIES RADAR DETECTION OF ICE

By LT. COMDR. R. P. DINSMORE, USCG



THE GROWLER is perhaps the most treacherous of all ice; it may be entirely obscured by sea-clutter on the radar scope yet be several thousand tons in size. The smooth, rounded, and wave-washed sides present the worst possible radar target.

THE INTERNATIONAL Ice Patrol is currently expanding a program for the study of radar behavior for detecting ice hazards to the mariner. This project, previously limited to Coast Guard cutters serving on the patrol, will be broadened to include a system of voluntary reports from mariners who have occasion to observe ice of any description on their radar equipment.

Since the advent of radar during World War II and its increasing use for maneuvering in ice, there have been conflicting reports on the reliability of radar as an instrument for safe navigation through ice areas of the North Atlantic Ocean.

Some of these controversial reports can be attributed to the operating condition of the radar set and others to the limitations in the operator's qualifications. However, still others can not be explained on either basis, but apparently stem from some fundamental cause such as differences in the radar type and antenna characteristics or atmospheric conditions which may affect the propagation of radar waves or in the size and shape of the target.

INVESTIGATIONS

During 1945, 1946, and 1957, scientific investigations of the qualitative and quantitative behavior of radar in ice detection were made by Coast Guard ships assigned to Ice Patrol duties. Analyses of radar ice reports submitted by Hudson Bay shipping during the 1953–57 seasons were made by the National Research Council of Canada. The results of these surveys indicate ice, especially small fragments, are inconsistent targets and that vessels relying on radar for a safe course through ice areas endanger their safety.

Preliminary data indicates that in a calm sea and with a well-adjusted radar, a large iceberg should be detected at a range of from 10–15 miles, and growlers and sea ice at only 2–3 miles. However, in moderate or rough seas the "sea return" or "clutter" may mask entirely the latter types of ice and thereby create a grave menace. In view of these observations and recent advances on radar systems and anticlutter circuitry, an extensive program for the investigation and reevaluation of ice detection by radar was established by the Commandant, U.S. Coast Guard, in 1958. The tragic loss of the Danish Motor Vessel *Hans Hedtoft* in January of this year due to ice serves to stress the importance of this work.

DETECTION OF ICE

This investigation includes an examination of the characteristics of modern radars which will enable the optimum detection of ice, an evaluation of the effectiveness of electronic measures in the discrimination of ice echoes from sea clutter, an investigation of radar propagation over the Grand Banks area and a study of operating techniques. The formal scientific observations are being conducted by Coast Guard ships on Ice Patrol and Ocean Station duties. These cutters will conduct a series of carefully controlled experiments to compare the resultant effects of var-

ous iceberg shapes, sea conditions and "atmospheric" conditions.

This latter subject of atmospherics is being given particular attention since the effect of refraction on radar propagation has been a hitherto neglected factor. This is perhaps satisfactory for most regions of the world, but in the area where the ice menace is the greatest to shipping, i.e., over the Grand Banks of Newfoundland, there exists the area of, perhaps, the greatest atmospheric stratification in the world. Ice Patrol officers have, for many years, known of the strange sensation of drafts of warm air felt while a ship is lying close on the lee side of an iceberg. This is caused by the top of the berg protruding up into a layer of warm air overriding a cold surface layer and deflecting it downward. The behavior of radar is undoubtedly affected by such a severe temperature inversion.

scrutiny will be given to such controversial subjects such as antenna locations, wave lengths, range scales, anti-clutter circuits, search sweep and procedures.

The International Ice Patrol has prepared worksheets for ships to use when the opportunity arises to observe a radar contact with ice. These forms are currently being distributed. The observer is asked to complete as much or as little of the form as his time permits or the observation allows. Of particular importance is the type of radar, antenna height, size and shape of the ice observed, sea conditions and the distances of radar and visual contact. Most important is the observer's own pertinent remarks concerning his technique and radar reliability. Reports should be mailed to:

Commander, International Ice Patrol, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts.

ABOUT THE AUTHOR

A 1947 graduate of the Coast Guard Academy, LCDR Dinsmore has seen duty aboard various cutters and as a science instructor at the Academy. Presently he is serving in his third year as Executive Officer of the International Ice Patrol. He has a Masters degree in Oceanography from the University of California, Scripps Institution of Oceanography, La Jolla, Calif.

GROWLERS

As regards types of ice, the focus of interest will be on the "growler." This fragment or remnant of an iceberg is perhaps the most dangerous and treacherous of all ice. A typical growler 50 feet across and extending only 10 feet above the surface has a mass of over 5,000 tons. Its smooth, rounded, and wave-washed sides present the worst possible radar target.

From the reports provided by merchant and other shipping, an increased collection of data will result in a large cross section of many different radar types, installations, targets and operator techniques which can be processed and analyzed. Close

Results of the program will be published from time to time in various marine journals and participating ships will receive special acknowledgment reports.

REGARDLESS OF WHETHER OR NOT HE HOLDS A COPY OF THE INSTRUCTIONS OR FORMS, ANY MARINER WHO HAS OCCASION TO OBSERVE ICE ON HIS RADAR IS INVITED TO SUBMIT A REPORT TO COMMANDER, INTERNATIONAL ICE PATROL, GIVING PERTINENT DATA AND DISCUSSION. SUCH A REPORT, HOWEVER BRIEF, WILL BE WELCOME.

SAFETY WINNERS

States Marine Lines has announced winners in its fleetwide safety contest for the last half of 1958, with individual honors going to Robert C. Lawson, able seaman in the SS *Golden State*, and the ship award to the SS *Magnolia State*.

The *Magnolia State* received a cash award of $500 to be split between the licensed and unlicensed personnel, and Mr. Lawson won $150 for his poem "The Sage of Poor Claybourne Jones," showing how important it is to check your gear before painting aloft.

The *Magnolia State* won top honors with a rating of 97.73, which represented only two lost-time accidents for the year ending December 31, 1958. The *Green Mountain State* was second with a rating of 95.46, and the *Golden State*, winner of the fleet award in 1952 and 1957 was third with a rating of 93.18.

PUBLIC LIBRARY OF THE HIGH SEAS

Annual appeal for support of the American Merchant Marine Library Association "Public Library of the High Seas" emphasizes the Association's threefold program: 1. Seagoing library service to the American Merchant Marine—Our Fourth Arm of Defense and all waterborne operations of the U.S. Government. 2. Shore Library facilities where technical books can be borrowed for study in conjunction with the Coast Guard's upgrading examinations. 3. A comprehensive nautical collection at headquarters for maritime research and reference.

The AMMLA library service is available on the East Coast at the following ports: 408 Atlantic Avenue, Boston, Mass.; 45 Broadway, New York 6, N.Y.; 406 East Plume Street, Norfolk 10, Va. On the West Coast the three port offices are located at: 105 Embarcadero, San Francisco 11, Calif.; 820 South Beacon Street, San Pedro, Calif.; and 3415 East Marginal Way, Pier 24, Seattle 4, Wash. The New Orleans port office, 201 Esplanade Avenue Wharf, New Orleans 16, La., services the vessels sailing from the Gulf of Mexico and the traffic on the Great Lakes is handled by the Sault Ste. Marie port office, Old Weather Building, Sault Ste. Marie, Mich.

Books and magazines may be sent to the nearest port office and contributions of money forwarded to the Association's headquarters in New York at 45 Broadway.

THE FLYING DUTCHMAN RIDES AGAIN

SINCE THE TIME men first embarked on the water, a good part of sea lore has been about "ghost" ships, sea serpents, and lute-playing maidens who lure unsuspecting sailors on the rocks. Now we have "ghost" pilots.

At least that's one way the amazing navigation of two ships on the Buffalo River last winter has been described. Laid up and completely unmanned except for a shiptender, the SS *MacGilvray Shiras* was torn loose from its moorings by a combination of strong winds and heavy masses of ice in strong flood currents, and propelled stern first down the river. Without a hand being laid on the steering gear the ship safely made two 90° turns and passed nine other large laid-up ships before it crashed into the SS *Michael K. Tewksbury*, moored some 1.5 miles downstream.

The force of the collision tore the *Tewksbury* from her moorings and she, too, began drifting down river, totally unmanned. The two ships then navigated the Ohio street 90° turn without mishap, although the bow of the *Shiras* touched the port quarter bulwarks of a ship tied across the river inflicting minor damage. They passed on through the draw of the Ohio street bridge and headed for the Michigan Street Drawbridge another mile downstream, clearing three other moored ships in the narrow river.

At the Michigan Street Drawbridge the three bridgetenders, notified of the danger, made preparations to raise the draw. This was complicated by the fact that the main electric power was not available for operating the hoisting equipment leaving an auxiliary gasoline engine which required considerably more time to raise the span.

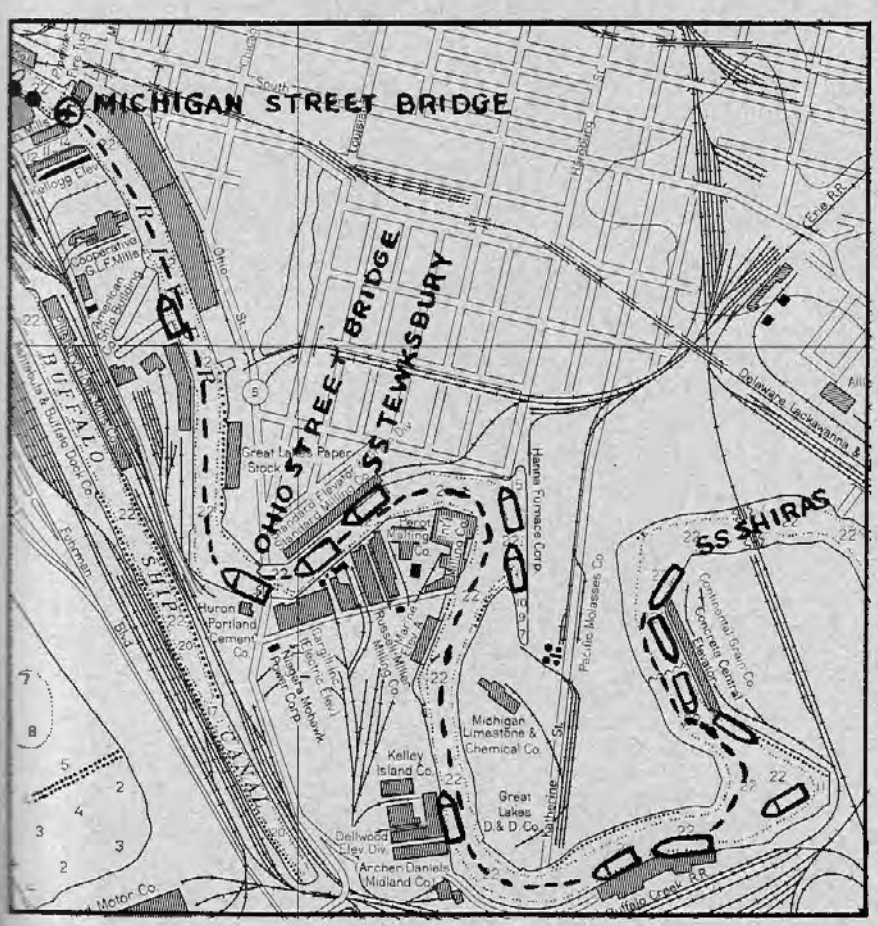
The draw had been raised approximately 20 feet when the *Tewksbury* crashed into it. The bridgetenders

prudently leaped to safety just before the stern of the ship struck. All were injured in the jump.

The south tower crumpled and fell in the river and the counterweights landed on the approaches. The *Tewksbury* came to a halt with her stern in the draw, the bridge span upper section resting on her fantail and boat deck and the lower section of the span in the water under her stern. The *Shiras* came to a halt in two ships, together with the collapsed bridge structure, blocked the channel and ice backed up for over 3 miles upstream creating a serious flood hazard.

Ten days later, the *Tewksbury* was freed by a combination of tugs and winches.

Newspaper accounts of the casualty point out that ship captains wouldn't dream of navigating the difficult Buffalo River without some help. Usually



the ice with her starboard quarter against the port side of the *Tewksbury* and her port bow against an adjacent dock.

Both vessels remained in this position until the next morning when the weakened north tower collapsed, falling away from the river. When the tower fell, the *Tewksbury* was momentarily released and she fell back several feet. Her bow swung to starboard and struck another ship, resulting in minor damage. However, the they come down the river with the aid of two tugs, one forward and one aft. There have been, it was pointed out, occasions when the trip was made without tugs, but in these cases the most elaborate plans were laid before it was attempted.

These included the use of "dead men" planted ashore so the huge lakers could pull themselves around the tortuous curves. "Amazing" is what marine men say today in talking about the ship's feat.

COMMENDATIONS

Two commendations, one to a U.S. Merchant Marine Academy deck cadet who saved the life of a drowning man, the other to the Master and crew of an American merchant ship for saving an aviator lost off the supercarrier USS *Forrestal* were announced by Clarence G. Morse, Chairman, Federal Maritime Board, and Maritime Administrator, U.S. Department of Commerce.

The commendations were made to Capt. Robley C. Evans, Master of the SS *Moline Victory*, and his men, for a rescue in the North Atlantic, October 17, 1957, and to Cadet Richard Gomes of the SS *President Adams* for saving a drowning man in Yokohama harbor November 1956.

In his commendation to Captain Evans and the crew of the *Moline Victory*, Mr. Morse said that they searched unremittingly, despite a thick fog blanket, heavy sea and swell which prevented lowering away a lifeboat, and finally saved the downed fighter pilot from USS *Forrestal*. Coordinating their efforts with skillful maneuvering from the bridge which was maintaining communication with the carrier's reconnaissance planes, two seamen descended pilot ladders and successfully brought the aviator, his rubber raft and equipment aboard from the heaving sea.

The commendation of Cadet Gomes said that, returning from ashore in Yokohama, he caught sight of a man struggling in debris littered, crowded waters astern of the *President Adams*, instantly leaped to a sampan lying off the pier and attempted to haul the weakened man aboard the craft. Slipping into the water himself, Cadet Gomes swam with the man to the pier and kept him afloat until both were hauled to safety on a rope.

The *Moline Victory* is owned and operated by Prudential Steamship Corp., 17 State Street, New York, and was transporting cargo from Philadelphia to Barcelona, Spain, when the *Forrestal* flier crashed in her vicinity.

Cadet Gomes at the time in question was serving his sea year for practical training on board the SS *President Adams*, ex *Palmetto Mariner*, owned by American President Lines, Ltd., San Francisco. Cadet Gomes is now a senior at the U.S. Merchant Marine Academy, scheduled to graduate in August 1959.

SOOGEE-MOOGEE

A PART of every sailor's life is spent on the business end of a soogee rag. Mixtures of soap, scouring powder, and copious quantities of water are invaluable in brightening up a ship or getting things ready for a fresh coat of paint.

Lately, however, certain detergents have been used aboard ship with some unexpected results. The modern cleaning solutions remove dirt, soot, oil, stains, etc., in fine style, but some of them are dangerous. Particularly the ones with a phosphoric acid base.

Even diluted these phosphoric acid salts will rot manila or other vegetable fiber lines and, in most cases, without the line being discolored or showing external weakness.

This means, if you splash the gantlines supporting bos'n chairs or stages with this soogee mixture, you may be weakening the line to the point where it is unsafe to use.

On one ship, 2¼" manila line used several times to paint aloft was rigged for a stack job. The line looked new and felt new. Experienced seamen climbed an inside ladder to the top of the stack and rigged bos'n chairs to blocks suspended in hooks over the edge of the stack. Satisfying himself his chair was rigged properly, one able seaman got into it and started to soogee the stack. He cleaned all he could reach and then lowered himself about 18 inches. Just as he reached into his rinse bucket, the line parted and he fell 25 feet to the deck below.

A doctor was summoned and an ambulance removed the man to a Public Health Hospital nearby. His injury was diagnosed as "compression fracture severe of L–1 vertebra," and "contusion of conusmedularis of spinal cord due to trauma."

The broken line had been aboard the ship a little over a year and used four or five times before the accident. A chemical analysis revealed a heavy concentration of phosphates at the break.

The investigation showed that the broken gantline, while relatively new, was wetted through with a detergent mixture on previous jobs and stowed in a deck locker. The phosphoric acid compounds contained in the soogee mixture had weakened the line to the extent it parted under far less strain than the 2,515-pound breaking strength determined by the testing laboratory.

The United States P & I Agency relates similar casualties in a recent safety letter:

HIGH ATOP THIS SHIP'S stack a seaman points out the position a fellow crewmember was in when his gantline parted plummeting him to the deck 25 feet below.

"On another ship, when the afterhouse was soogeed, some of the soogee dripped on a mooring line that was coiled on a grating. When the line was used shortly afterward, it parted as soon as it took a strain. On still another vessel, all booms were soogeed while the guylines were triced up along them. Every guyline had to be replaced at the next port.

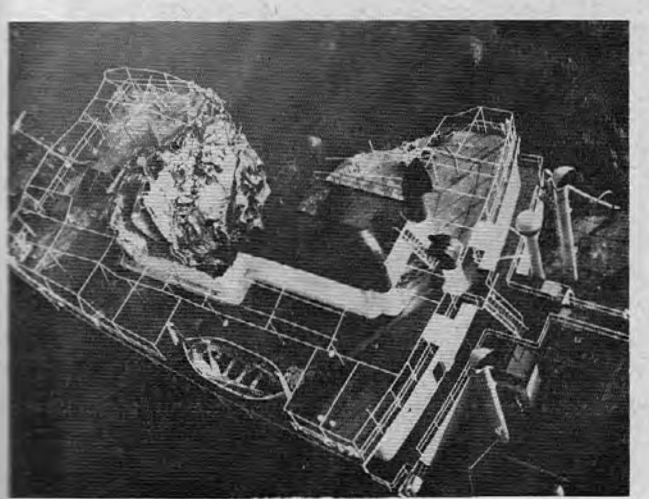
"Sometimes the corrosive effect of detergents is speeded up by a bos'n's impatience. "Boats" may figure that if the manufacturer's instructions call for a cup of detergent to a bucket of water, two cups to a bucket will do the job as fast and twice as well. He may not realize that the expected effects of the cleaner may be doubled also, in speed and in severity. It does not help matters that the detergent seldom shows its chemical composition or the potential hazards of its use, on the label of the container.

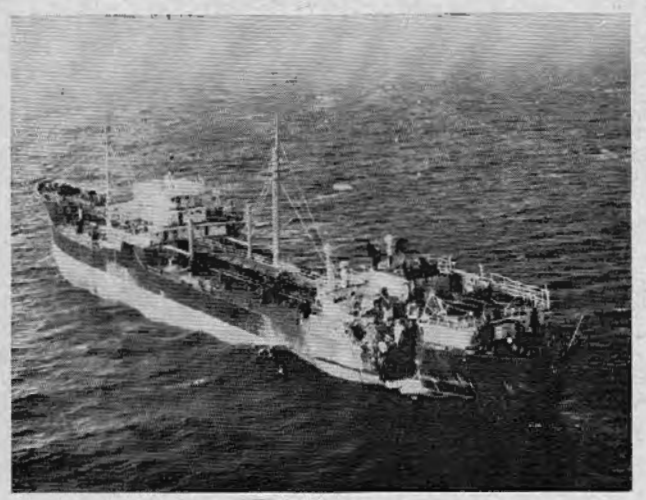
"There are similar situations in the galley and also down below, where new cleaners are being introduced all the time. Solutions for cleaning tiled decks, toilets, oil burners, etc., contain the same potential hazards (even if they are not spiked with a shot of boiler compound). For example, a bottle of one such solution was broken on a shelf in the forepeak locker and dripped its contents on to a coil of new 3" manila line. Some time later, a gantline was cut from the coil, secured to a bos'n chair, and rigged to slush down a shroud. When the chair was hoisted aloft, the slusher climbed up and into it—and the gantline parted. Down the shroud he whizzed for 90 feet. Near the bottom, a turnbuckle checked his momentum and as a result, he spent only 2 months in a hospital instead of going to the morgue. Although this gantline showed absolutely no external trace of damage, it could be twisted apart easily where the chemical had dripped on it. Precisely the same accident happened on another ship except that the gantline led to the head of a kingpost and when the man felt the line letting go, he grabbed a topping lift and the chair slid down without him.

"Cleaners that rot manila line like that have no place on board ship and should not be permitted there. Even with the most stringent controls, an accident is bound to occur sooner or later if the material is on board. All detergents or cleaners that are accepted on board should have their hazards clearly and conspicuously described on the container labels."

AERIAL PICTURES OF THE SANTA ROSA-VALCHEM COLLISION

COAST GUARD photos of the March 26, 1959, collision 22 miles east of Atlantic City, N.J., between the Grace luxury liner *Santa Rosa* and the SS *Valchem*.
Seen at the right is a close-up view of the bow of the *Santa Rosa* carrying the stack and adjacent ventilators from the tanker. The bottom photos indicate the extent of damage in the stern section of the *Valchem*.





HAVE GREASE—WILL LUBRICATE!

Grease in sight doesn't always mean grease in action. Friction points usually are those hidden from the eye. Just because your gear or machinery is dripping with oil or smeared with grease doesn't mean that it's lubricated properly.

A good place to look for improper lubrication is in the hinge pins on mechanical screw davits. Without proper maintenance a casualty like this one may occur:

Holding a routine fire and boat drill at sea, the crew of this ship started to swing out lifeboat No. 1. When the forward davit arm took the weight of the boat, the swivel pin carried away. The davit, boat, and all crashed to the deck. The pin fractured at right angles to its axis at a point exactly in line with the after end of the bronze bushing. Fortunately no one was hurt.

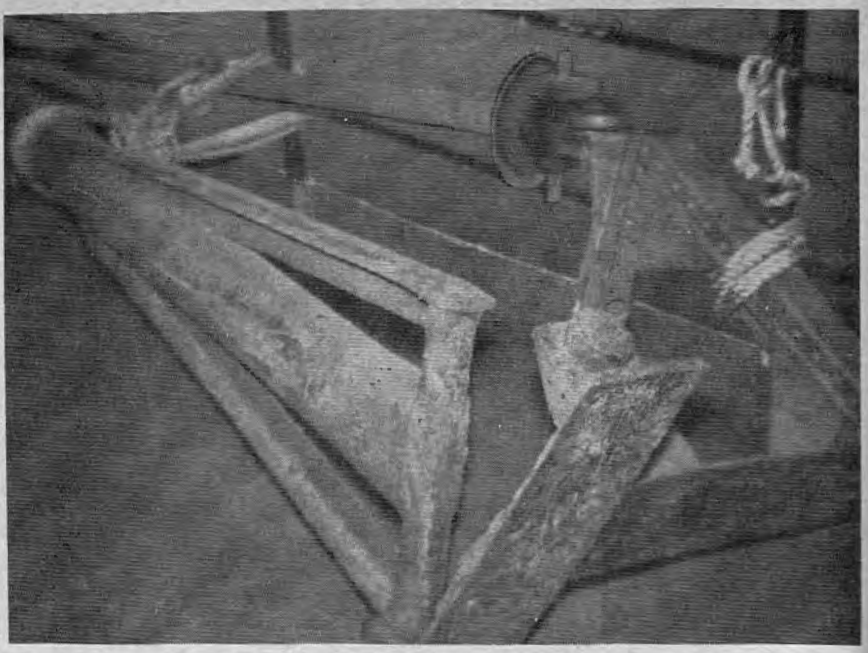
A subsequent investigation showed that the casualty was caused by the swivel pin freezing in its bushing and failing under the torsional stresses imposed when the crew attempted to turn the lifeboat out. Records aboard ship indicated that the fitting had been greased regularly, but it was apparent that no grease was getting through to the bearing.

On this type of davit installation it is essential that the pin be lubricated where it counts, in the bearing, and not across the fitting. A gob of grease on the fitting doesn't help anything.

One way of testing this vital piece of equipment is to disengage the falls from the boat, make a mark outboard across the housing and pin, and swing the davit out to its farthest reach. Then check the mark. If the line on the pin doesn't appear at right angles to the line of the housing, it's time for an overhaul. If the line does move around as it should, you will know the pin is free. Also, in swinging the davit arm from inboard to its outboard position you have an excellent chance to hook up the grease gun and thoroughly lubricate the bearing.

While you are about it, take a look at the holding down bolts and nuts at the foot of the davits. One Coast Guard inspector reported of being able to knock off all four of the rust-encrusted nuts on one such installation.

Take no changes with *your* lifesaving apparatus. Make it part of every drill to ensure the hinge pins are free, well lubricated, and operating properly. There's nothing corny about the life you save may be your own!

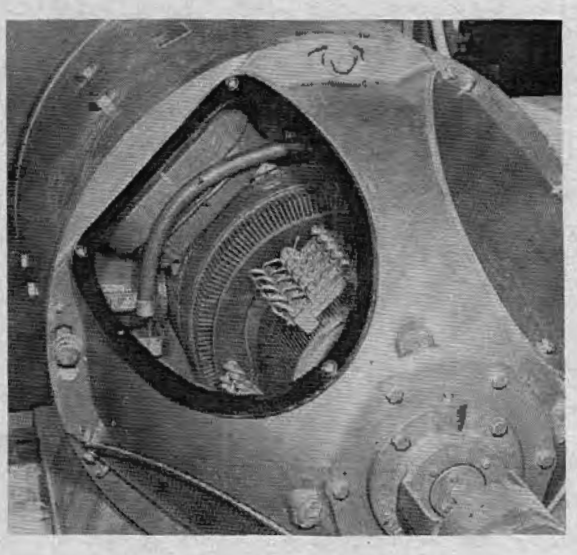


MOTOR INSPECTION WINDOW

A good idea on direct-current motors is the installation of a plexiglass inspection window as shown here. This enables engineers to make a rapid check of the condition of the commutator and brush assembly and spot any sparking.

This inspection method has reduced motor downtime and failure in Navy installations and greatly improved their preventative maintenance program. Before these installations were made, motor trouble could be detected only during checks or when a motor operated erratically or failed.

Photo Courtesy *Bureau of Ships Journal.*



MARITIME SIDELIGHTS

Nine of Isthmian Lines' 24 ships posted accident ratings of 90 or better during 1958 with the SS *Steel Worker* heading the list with a fine 95.66. The *Steel Traveler* was a close second with 94.82, and the *Steel King* copped third place honors with 93.83.

Isthmian honors their safety conscious ships and personnel with a $500 cash award to the ship with the least accidents and $150 to the individual who submits the best safety suggestion, safety poem, safety article, or safety cartoon.

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Seventy-two vessels totaling 1,398,600 gross tons were under construction or on order in United States shipyards as of March 1, according to the Shipbuilders Council of America. Forty-one of the vessels are tankers registering 1,105,300 tons. Cargo ships accounted for 22 ships.

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A green cross for safety meets the eye as you step from the gangway to the deck of the United States Lines' SS *Southwind*. To stimulate safety thinking, a white square, approximately 3' x 3' has been painted on the deck at the head of each gangway platform. The green safety cross and the slogan "How about you? No Accidents for 1959" convey the message that if *Safety* comes *First* with *You* there won't be any accidents to worry about.

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Occasionally a shipping line gains a nonpaying passenger when it cannot put off a harbor pilot owing to rough weather, according to the New York Times. Both of United States Line's passenger vessels carried off their harbor pilots as captive tourists—each from an opposite side of the Atlantic. The two pilots will have a 2-week vacation at sea. The *United States* radioed as she sailed out of New York for Southampton and Havre on March 6 that owing to heavy seas she could not put off her pilot, John C. Punger, at Ambrose Lightship. Shortly after, the line disclosed that the liner *America* had said she was unable to put off her Irish pilot, David Aherne, as she sailed from Cobh, Ireland, for New York the day before.

Courtesy *The Range Light.*

An old face is making a new appearance on the West Coast. Early this month the *Delta King* is scheduled to be towed from Canada to Stockton, Calif., where she will be refurbished as a floating theater-restaurant. Both the *Delta King* and *Delta Queen* were built in Stockton in 1926 and for many years made regular runs between San Francisco and Sacramento. The *Queen*, owned by the Greene Line of Cincinnati, is in active service on the Mississippi River as an excursion boat.

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A final report on the performance of rotating shipboard cranes installed in the experimental Liberty ship MV *Thomas Nelson* has been published by the Maritime Administration. The report entitled "Shipboard Cranes and Burtoning Gear," may be purchased from Room 6313, U.S. Department of Commerce Building, Washington 25, D.C., for $2.50 a copy. It is numbered PB 121920R.

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The eighth magnetic and seismological observatory operated by the Coast and Geodetic Survey is under construction on Ewa Beach about 2 miles west of the entrance to Pearl Harbor. The new $400,000 facility is expected to be completed early in 1960 and will join those operated in Sitka, Alaska; Tucson, Ariz.; Fredericksburg, Va.; San Juan, P.R.; and Guam, M.I.

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A feasibility study seeking ways and means of applying scientific techniques to simplifying the paper work associated with shipping goods overseas in merchant vessels is being undertaken by the Maritime Administration. Recent studies have pointed up this problem which comes down from the slow tempo of sailing ship days. It is possible today to move goods faster than the necessary paperwork can be processed. It was pointed out that the moving of a ton of goods by ship from producer to foreign customer may involve as many as 170 steps of documentation before the shipment reaches the consignee. As many as 8,600 pieces of paper have been known to be involved in a single round trip of a commercial ship.

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Award of the first contract to insure American-flag service on a United States essential foreign trade route from the Great Lakes was announced by the Maritime Administration with approval of an operating-differential subsidy agreement with Grace Line, Inc., for service on Trade Route 33, Great Lakes/Caribbean.

This will be the first U.S.-flag service to be provided from the Great Lakes to foreign ports and the first subsidized service on a United States essential foreign trade route from the Great Lakes.

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A twin-cable system to provide at least 36 voice circuits and costing about $40 million is being laid between this country and continental Europe by the cableship HMTS *Monarch*, it was announced by the Long Lines Department of the American Telephone & Telegraph Co. Scheduled for public service in the fall, the system is the first submarine telephone cable to directly link the two continents.

ACCIDENTS IN BRIEF

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

CAUSE	EFFECT
Standing on lifeboat rudder	Slipped, fell in boat, fractured rib.
Fell off cargo boom	Cuts, possible leg fracture.

Filling cigarette lighter — **Seven days incapacitation due to burns.**

Climbing with wet gloves	Lost grip, fell down ladder.
Ascending into darkened hatch	Slipped on hatchboard and fell 15 feet into hold.

Missing outboard chain rail — **Slipped, fell overboard.**

Slipped on piece of soap	Bruised shoulder.
Tangled in mooring line	Amputated left lower leg.

Repairing running fan — **Severe cuts from whirling blade.**

Trimming fish on meat saw	Lacerated left hand.
Slipped, fell into running winch	Entangled in wire runner, suffered broken leg.

MERCHANT MARINE STATISTICS

There were 948 vessels of 1,000 gross tons and over in the active oceangoing U.S. merchant fleet on March 1, 1959, according to the Maritime Administration. This was six less than the number active on February 1, 1959.

There were 26 Government-owned and 922 privately owned ships in active service. These figures did not include privately owned vessels temporarily inactive, or Government-owned vessels employed in loading grain for storage. They also xclude 28 vessels in the custody of the Departments of Defense, State, and Interior.

There was a decrease of five active vessels and an increase of seven inactive vessels in the privately owned fleet. Two freighters, the *Penn Voyager* and the *Valiant Enterprise*, were returned from foreign to U.S. flag. One tanker, the *Barbara Jane*, was delivered into service, and one tanker, the *Esso Little Rock*, was transferred to inland service. This increased the total privately owned fleet by a net of 2 to 1,005.

Of the 83 privately owned inactive vessels, 37 dry cargo ships and 26 tankers were laid up for lack of employment, 1 more than on February 1. The others were undergoing repair or conversion.

The Maritime Administration's active fleet was one less than that of the previous month, while its inactive fleet decreased by five. Seven Liberty ships were sold for scrap. One transport owned by the Navy, was turned over to the Administration for lay-up in the National Defense Reserve Fleet and the Massachusetts Maritime Academy training ship was placed in the reserve fleet temporarily, while one LST was returned to the Navy. This decreased the Government fleet by 6 to a total of 2,107. The total merchant fleet of 3,112 active and inactive ships was 4 less than the fleet on February 1, 1959.

One new tanker was delivered to U.S. flag, and one, the *Patro* for foreign flag. One passenger ship conversion as completed, and a bulk carrier conversion for the Great Lakes was ordered. The total of large merchant ships on order or under construction in U.S. shipyards dropped by 2 vessels to 82.

Seafaring jobs on active oceangoing U.S.-flag ships of 1,000 gross tons and over, excluding civilian seamen manning Military Sea Transportation Service ships were, 51,449. Prospective officers in training in Federal and State nautical schools numbered 2,045.

nautical queries

Q. What is the Oil Pollution Act and to whom does it apply?

A. Except in case of emergency imperiling life or property, or unavoidable accident, collision, or stranding, it shall be unlawful for any person to discharge, or permit the discharge of, oil by any method into or upon the coastal navigable waters of the United States from any vessel using oil as fuel or any vessel carrying or having oil in excess of that necessary for its lubricating requirements.

Q. What precautions must be taken to avoid harbor pollution when taking fuel oil or petroleum cargoes?

A. When taking on fuel oil or petroleum cargoes, the following precautions should be taken against harbor pollution:

1. Scuppers should be plugged to prevent any overflow going overboard.

2. Drip pans should be provided under hose connections, vent pipes, etc.

3. Mooring lines should be carefully tended and hose should be of proper length to allow for any motion of the vessel alongside dock.

4. Hose should be in good condition, connections properly made, with efficient gaskets, and properly suspended to avoid kinking or crushing between ship and dock.

5. Proper signals should be arranged between ship and dock to stop the flow of oil when necessary.

6. Hoses should be carefully drained before being disconnected, and blanked off, if necessary, to prevent any oil remaining in the hose dripping.

7. Ballast discharge valves should be tightly closed and lashed or sealed if necessary.

8. Topping off tanks should proceed at a reduced rate with care to prevent spill.

9. Sawdust, rags, and on tankers, nonsparking tools should be available for cleaning decks in event of any spillage.

Q. When oil is discovered in a vessel's bilge wells at the time soundings are taken, what steps should be taken to prevent oil pollution of coastal waters?

A. When oil is discovered in a vessel's bilge wells at the time of taking bilge soundings, the engineers must be notified not to pump bilges overboard if the vessel is in coastal waters or where the contaminated bilge water may drift into coastal waters. The bilges may, if necessary, be pumped into a tank for future discharge either ashore or at sea when no danger of polluting coastal waters exists.

Q. What precautions should be taken by vessels pumping bilges, ballast, or oil overboard at sea to avoid pollution of coastal waters?

A. When pumping bilges, ballast, or oil overboard, every effort must be made to avoid pollution of coastal waters. If possible, pumping should be confined to such time as the vessel is at a maximum distance from coastal waters. Should it be necessary to pump bilges or ballast which may contain oil where the oil may pollute coastal waters, the pump discharge should be kept under constant visual observation, preferably on deck. If the discharge shows signs of oil, the bilge or ballast water should be pumped into one of the vessel's tanks, and then disposed of in port where such facilities as slop tanks, oil separation plants, and sludge barges are available to handle it; or the vessel may carry the oil or slops until she is far enough from shore to dispose of it without danger of pollution of coastal waters.

Consideration in all cases must be given to tide and currents which may cause oil to drift into coastal waters even though discharge takes place at a distance from the coast.

Q. What precautions must be observed when taking on water ballast to avoid danger of oil pollution, cargo damage, and structural damage to the vessels?

A. When taking on water ballast, it is necessary to avoid overflowing the tanks as such overflow would cause any oil floating on top of the water in the tanks to run on decks and overboard with consequent pollution of the water. When cargo is stowed in holds adjacent to the tanks being filled, a wise precaution is to sound the bilges frequently in order to detect any leakage into the cargo space as soon as possible. The tanks being filled should be sounded frequently not only to prevent spillage, but also to avoid putting an unnecessary head of water pressure on the tank top. Unless tanks being filled from deck sounding pipes or filling lines are sounded frequently and watched carefully with the above possibilities in mind, it is often wiser to fill through an open manhole with a man detailed to watch the operation. This method would prevent a head on the tank being filled and would preclude overflow on deck or overboard.

Vessels fitted with overflow below the main deck to avoid excessive head on tanks must see that such valves are in good condition to perform their function; however, such overflow must be avoided in coastal waters where oil pollution ruins beaches, destroys wildlife, etc.

Q. How would you protect the exhaust system of a diesel engine during a lay-up period?

A. During a lay-up period, the stack should be sealed so that no water may enter the system. All carbon should be removed from the exhaust system.

Q. (a) Where are zinc rods usually found in refrigerating systems?

(b) What is their purpose?

A. (a) Zinc protectors are installed in the water boxes of salt water cooled condensers.

(b) Their purpose is to minimize electrolytic corrosion of the condenser parts in contact with sea water.

Q. (a) Where does the greatest wear occur on the cylinder liner of most diesel engines? Why?

(b) What would you do to keep this wear to a minimum?

A. (a) The greatest wear on the cylinder liners usually occurs near the highest point of travel of the top piston ring. This point is the hardest to keep lubricated due to the extreme pressures and temperatures encountered. Friction is high at this point also due to the changing of speed and direction at the end of the stroke.

(b) To minimize this wear the liners should be periodically inspected to ensure that the proper lubrication is being received and that the rings are functioning properly. Good grades of fuel and lubricating oils should be used and the air as well as the oils should be properly cleaned of all abrasive materials.

WARNING SIGNALS

Warning signals for Coast Guard vessels while handling or servicing aids to navigation.—

Inland Waters (Inland Rules):

Day—Two orange and white vertically striped balls in a vertical line not less than 3 feet nor more than 6 feet apart displayed from the yardarm.

Night—Two red lights in a vertical line not less than 3 feet nor more than 6 feet apart.

Vessels, with or without tows, passing Coast Guard vessels displaying this signal, shall reduce their speed sufficiently to insure the safety of both vessels, and when passing within 200 feet of the Coast Guard vessel displaying this signal, their speed shall not exceed 5 miles per hour.

High Seas (International Rules):

Day—Three shapes not less than 2 feet in width in a vertical line not less than 6 feet apart, the highest and lowest being red globular shapes and the middle being a white diamond shape.

Night—Three lights in a vertical line not less than 6 feet apart, the highest and lowest being red and the middle being white in color.

COAST GUARD LIGHT LISTS AND MARINE AIDS

The 1959 editions of the Coast Guard List of Lights and Other Marine Aids now are available to the public. The following publications may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C., or from his sales agents located in the principal ports for the prices indicated:

ATLANTIC AND GULF COASTS, 1959 EDITIONS

Volume I, 1st Coast Guard District, from St. Croix River, Maine, to Watch Hill, R.I., price $1.50.

Volume II, 3d Coast Guard District, from Watch Hill, R.I., to Fenwick Island, Del., price $1.50.

Volume III, 5th Coast Guard District, from Fenwick Island, Del., to Little River Inlet, S.C., price $1.75.

Volume IV, 7th Coast Guard District, from Little River Inlet, S.C., to Apalachicola River, Fla., and the United States West Indies, price $1.75.

Volume V, 8th Coast Guard District, from Apalachicola River, Fla., to Rio Grande, price $1.75.

Volumes I–V (combined). Complete List of Lights and Other Marine Aids, Atlantic Coast, price $5.50. This volume is a composite list of Volumes I to V, inclusive, with suitable cross-references to facilitate its use by navigators operating in more than one Coast Guard District.

PACIFIC COAST, 1959 EDITIONS

Volume I, 11th Coast Guard District, from Mexican border to Point Arguello, Calif., price $0.70.

Volume II, 12th Coast Guard District, from Point Arguello, Calif., to St. George Reef, Calif., price $0.70.

Volume III, 13th Coast Guard District, from St. George Reef, Calif., to Alaska, price $1.25.

Volume IV, 17th Coast Guard District, Alaska, price $0.75.

Volume V, 14th Coast Guard District, Hawaiian and Pacific Islands, price $0.70.

Volumes I–V (combined), List of Lights and Other Marine Aids, covering the Pacific Coast and Islands, price $2.00. This volume is a composite list of Volumes I to V, inclusive, with suitable cross-references to facilitate its use by navigators operating in more than one Coast Guard District.

GREAT LAKES, 1959 EDITION

List of Lights and Other Marine Aids, Great Lakes, United States and Canada, price $1.75.

MISSISSIPPI RIVER SYSTEM, 1959 EDITION

List of Lights and Other Marine Aids, Mississippi River System, price $1.75.

more on **SAFETY WINNERS**

Continued from page 91

BARGE AND TOWING

OVER 5,000 MAN-DAYS

Average Rate, 8.36

1—United States Steel Corp., Clairton, Pa., 0.00.

2—The Texas Co., New York, 3.57.

3—A. L. Mechling Barge Lines, Inc., Joliet, Ill., 3.76.

UNDER 5,000 MAN-DAYS

Nine-way tie for first place, all with perfect records, between Greenville Transportation Co., Greenville, Miss.; Socony-Mobile Oil Co., New York; The New Haven Towing Co., New Haven, Conn.; Marquette Cement Mfg. Co., Chicago, Ill.; Armco Steel Corp., Huntington, W. Va.; Standard Oil Co. (Indiana), Chicago, Ill.; Brent Towing Co., Greenville, Miss.; Sohio Petroleum Co., MV Sohio State; and Boat 3201 Inc., Houston, Tex.

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 March 14, 1959 (CGFR 59–2). Copies of these documents may be obtained from the Superintendent of Documents, Washington 25, D.C.]

AFFIDAVITS

The following affidavits were accepted during the period from 15 February 1959 to 15 March 1959:

Aeroquip Corp., Industrial Div., Van Wert, Ohio, PIPE FITTINGS.

Barksdale Valves, 5125 Alcoa Avenue, Los Angeles 58, Calif., VALVES.

Barnes & Jones, Inc., P.O. Box 207, 34 Crafts Street, Newtonville 60, Mass., VALVES AND PIPE FITTINGS.

Crawford Fitting Co., 884 East 140th Street, Cleveland 10, Ohio, TUBE FITTINGS.

L. & L. Mfg. Co., P.O. Box 292, East Detroit, Mich., PIPE FITTINGS.

Waterman Engineering Co., 725 Custer Avenue, P.O. Box 391, Evanston, Ill., PIPE FITTING.

ARTICLES OF SHIPS' STORES AND SUPPLIES

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

CERTIFIED

Brulin & Co., Inc., 2939–45 Columbia Avenue, Indianapolis 7, Ind., Certificate No. 383, dated 31 March 1959, BRULIN'S FORMULA 814 MX.

Farrell Chemical Co., 705 Second Avenue, Seattle 4, Wash., Certificate No. 382, dated 10 March 1959, OIL TANK CLEANER 1001.

CANCELED

(At Request of Certificate Holder)

Turco Products, Inc., 6135 South Central Avenue, Los Angeles 1, Calif., Certificate No. 339, dated 1 March 1959, TURCO 3447.

Turco Products, Inc., 6135 South Central Avenue, Los Angeles 1, Calif., Certificate No. 364, dated 1 March 1959, TURCO-KLENE.

Virginia Smelting Co., West Norfolk, Va., Certificate No. 103, dated 1 March 1959, LETHALAIRE V–22 FORMULA.

CANCELED

(Failed To Renew in Accordance with 46 CFR 147.03–9)

Jones-Gill Chemical Co., 801 Charles Street, Gloucester City, N.J., Certificate No. 283, dated 1 March 1959, DUAL D–G–2 WASHAWAY GREASE REMOVER.

West Disinfecting Co., 42–16 West Street, Long Island 1, N.Y., Certificate No. 134, dated 1 March 1959, PYROSECT.

West Disinfecting Co., 42–16 West Street, Long Island 1, N.Y., Certificate No. 192, dated 1 March 1959, RESIDOL.

West Disinfecting Co., 42–16 West Street, Long Island 1, N.Y., Certificate No. 289, dated 1 March 1959, WESCODYNE.

West Disinfecting Co., 42–16 West Street, Long Island 1, N.Y., Certificate No. 349, dated 1 March 1959, SHOWERSAN.

Wilbur & Williams Co., 650 Pleasant Street, Brighton 35 (Boston), Mass., Certificate No. 166, dated 1 March 1959, W & W PENETRATING OIL.

MARINE SAFETY PUBLICATIONS AND PAMPHLETS

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

CG No.	*Title of Publication*
101	Specimen Examinations for Merchant Marine Deck Officers. 7–1–58
108	Rules and Regulations for Military Explosives and Hazardous Munitions. 8–1–58
115	Marine Engineering Regulations and Material Specifications. 3–1–58
123	Rules and Regulations for Tank Vessels. 4–1–58
129	Proceedings of the Merchant Marine Council. Monthly
169	Rules 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. 4–1–58
172	Pilot Rules for the Great Lakes and Their Connecting and Tributary Waters. 4–1–58
174	A Manual for the Safe Handling of Inflammable and Combustible Liquids. 7–2–51
175	Manual for Lifeboatmen and Able Seamen, Qualified Members of Engine Department, and Tankerman. 6–1–55
176	Load Line Regulations. 9–2–58
182	Specimen Examinations for Merchant Marine Engineer Licenses. 5–1–57
184	Pilot Rules for the Western Rivers. 7–1–57
190	Equipment Lists. 4–1–58
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel. 9–15–55
200	Marine Investigation Regulations and Suspension and Revocation Proceedings. 7–1–58
220	Specimen Examination Questions for Licenses as Master, Mate, and Pilot of Central Western Rivers Vessels. 4–1–57
227	Laws Governing Marine Inspection. 7–3–50
239	Security of Vessels and Waterfront Facilities. 7–1–58
249	Merchant Marine Council Public Hearing Agenda. Annually
256	Rules and Regulations for Passenger Vessels. 3–1–57
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. 9–2–58
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. 9–3–57
269	Rules and Regulations for Nautical Schools. 11–1–53
270	Rules and Regulations for Marine Engineering Installations Contracted for Prior to July 1, 1935. 11–19–52
290	Pleasure Craft. (Formerly "Motorboats"). 1–2–59
293	Miscellaneous Electrical Equipment List. 4–15–58
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf. 1–2–57
323	Rules and Regulations for Small Passenger Vessels. (Not More Than 65 Feet in Length) 6–1–58
329	Fire Fighting Manual for Tank Vessels. 4–1–58

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

Changes Published During March 1959

The following has been modified by Federal Register:

CG–190 Federal Register, March 14, 1959.

U.S. GOVERNMENT PRINTING OFFICE: 1959

INTERNAL WASTAGE OF CYLINDER FOOT