PROCEEDINGS
OF THE MERCHANT MARINE COUNCIL

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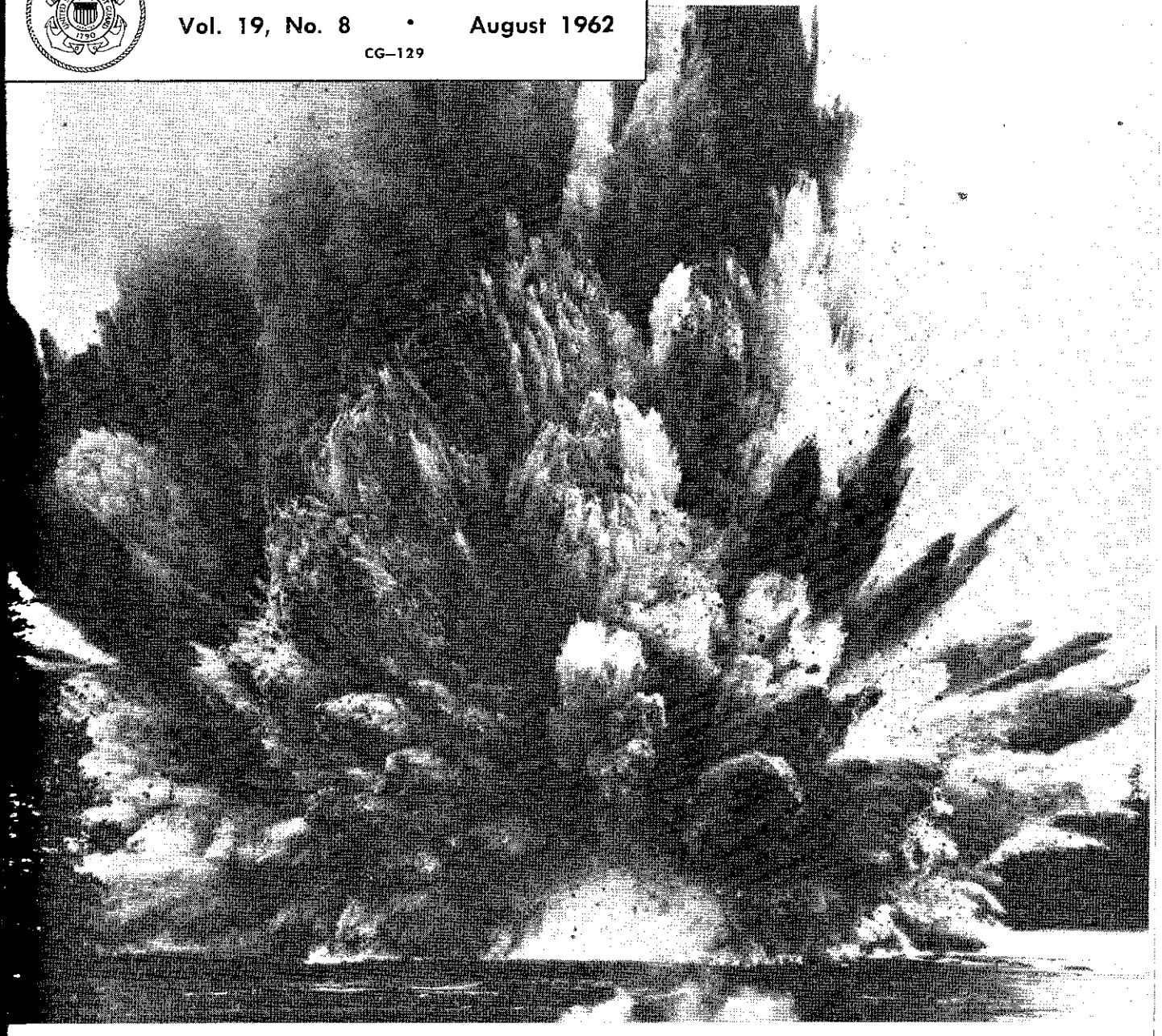

Features

THE END OF RIPPLE ROCK

STABILIZING THE ROLL OF SHIPS

PROCEEDINGS

OF THE

MERCHANT MARINE COUNCIL

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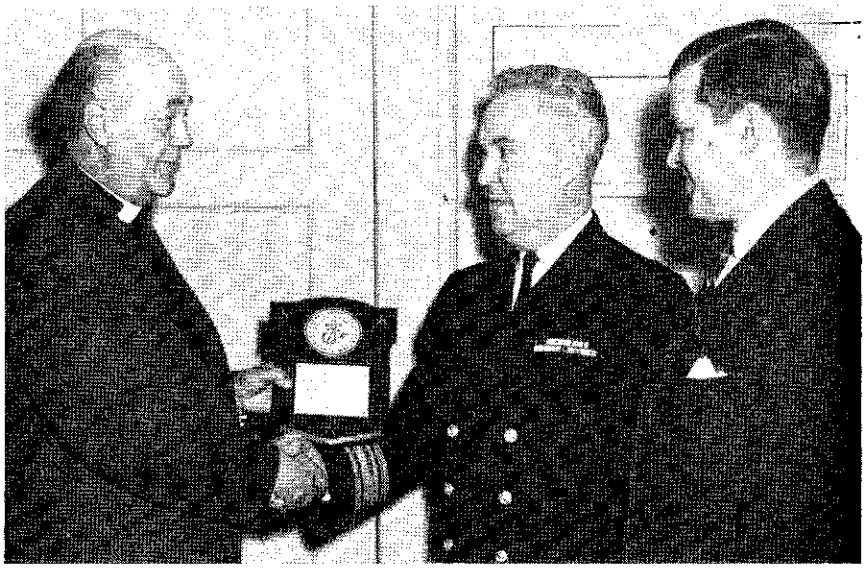

REAR ADMIRAL R. M. ROSS, center, Commander Third Coast Guard District, receives a Medallion of Honor from Rev. John M. Mulligan, left, Director of the Seamen's Church Institute of New York. The President of the Seamen's Institute, Franklin E. Vilas looks on.

The plaque was presented to the Coast Guard recently during the ceremony of the Fiftieth Anniversary of the sinking of the Titanic, for "Untiring and heroic service in safeguarding lives and ships at sea." The ceremony took place at the Seamen's Church Institute, New York City.

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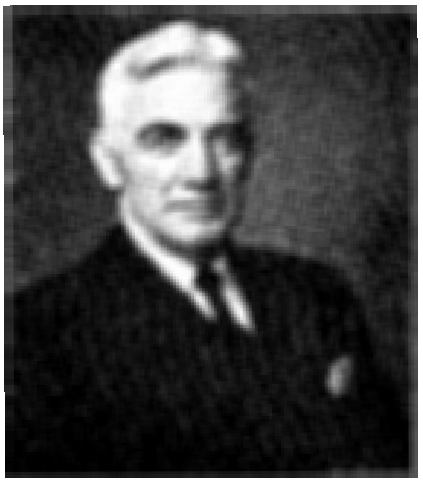
ADMIRAL RICHMOND RETIRES

ADMIRAL E. J. ROLAND, Commandant of the Coast Guard as of 1 June 1962, looks on as retiring Commandant, Admiral A. C. Richmond receives a letter of appreciation from the President of the National Safety Council, Howard Pyle.

MERCHANT MARINE SAFETY

REAR ADMIRAL OSCAR C. ROHNKE has succeeded Rear Admiral I. J. Stephens as Chief of the Office of Merchant Marine Safety. RADM Rohnke has served in many and varied capacities and commands since his graduation from the Coast Guard Academy in 1932. His most recent assignments include that of Officer-In-Charge of Marine Inspection at the port of Long Beach, California, Chief of Staff of the 11th CG District, and Commander of the 2nd CG District.

NEW COMMANDANT



ADMIRAL EDWIN J. ROLAND was sworn in as the new Commandant of the United States Coast Guard on 1 June 1962. The oath of office was administered by Assistant Secretary of the Treasury, James A. Reed.

Treasury Secretary, Douglas Dillon, welcomed Admiral Roland to his new post at the ceremony, which was held in the main Treasury Building in Washington, D.C. The occasion was attended by Treasury and Coast Guard officials, numerous friends, and Admiral Roland's wife, two sons, and daughter. Both sons, William F. and Edwin J., Jr., are graduates of the Coast Guard Academy and are serving in the Coast Guard as commissioned officers.

The oath of office ceremony completed the formal procedures which began on the preceding day when retiring Commandant A. C. Richmond formally turned over his duties to Admiral Roland at the colorful Change of Command Ceremony held on board the Cutter Campbell on the Potomac River.

MAY 25, 1962

ADMIRAL A. C. RICHMOND,
Commandant,
United States Coast Guard,
Washington 25, D.C.

DEAR ADMIRAL RICHMOND: It is a privilege for the National Safety Council to express formally our appreciation for the outstanding contributions to safety which you have made during your eminent career.

First of all, as Commandant of the United States Coast Guard, you have headed a service which has saved countless lives. Through inspection, education, and rescue work the Coast Guard has been an all-powerful influence in promoting maritime safety.

It is also significant that under your leadership, the Coast Guard has served the cause of safety by its own service personnel safety program. This program serves as a shining example to the vessel operators whose interest in the field of safety your organization aids in all possible ways.

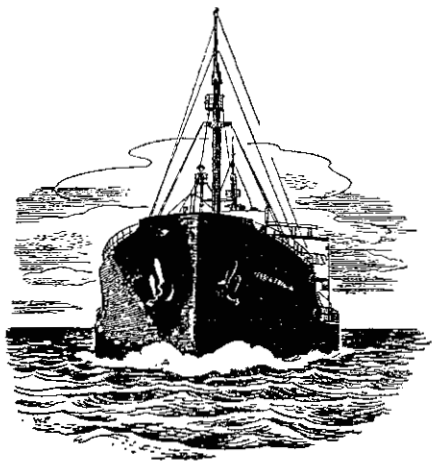
Specifically for the National Safety Council, we deeply appreciate your generous support of our commercial maritime safety work through your many years' service as an officer of our Marine Section. We have long been proud of our close association with the Coast Guard in this occupational safety area.

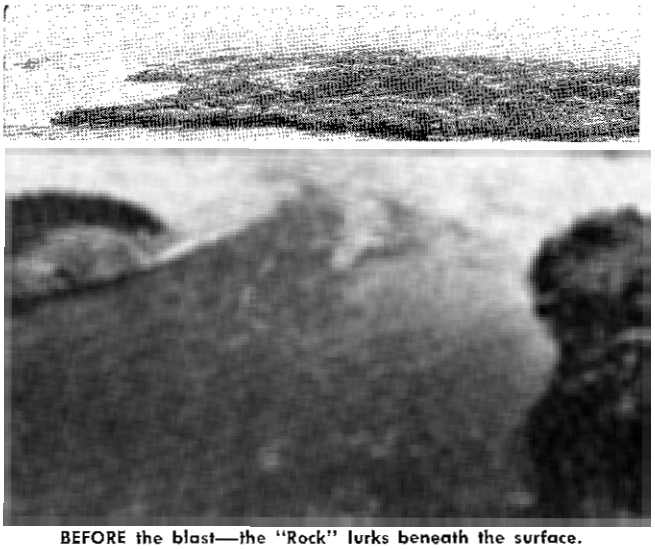
And finally, during the past two years, you have served as the first Chairman of our new Recreational Boating and Water Safety Committee. Under your distinguished leadership, 66 top representatives of the leading national organizations and companies technically concerned have made impressive progress in this important work for the enjoyment of safe recreational boating and other water sports.

Truly, America is a safer country because you have participated so effectively in the safety movement. All of us in the National Safety Council are inspired by your example, and are grateful for the opportunity we have had to work with you.

Sincerely,

Howard Pyle,
President.





BEFORE the blast—the "Rock" lurks beneath the surface.

Seymour Narrows.

THE END OF RIPPLE ROCK

SHIPS IN THE BRISK intercoastal Alaskan trade usually follow the 850 miles of sheltered inland waterway along Canada's west coast. For most of the way, it's easy sailing with ample maneuvering room and plenty of deep water. Between Quadra Island and the northeastern coast of Vancouver Island, however, a two-mile throat exists which narrows the waterway to less than 2,500 feet. Through this slot tidal currents frequently run in excess of 14.5 knots, and whirlpools, estimated to be 30 feet in diameter and 15 feet deep, frequently imperil small vessels.

In the very middle of Seymour Narrows the twin peaks of Ripple Rock soared upward from the bottom to within 9 feet of the surface, creating an obstruction which, since 1875, caused the loss of, or damage to, over 100 ships and the loss of some 114 lives. The passage was so treacherous that ships would anchor at each end of the Narrows to wait for slack water. Then, as many as could would sail through during the 30-minute period of comparatively quiet water while the rest waited for the next change of tide. Since vessels using the route annually carry over 175,000 passengers and transport goods valued in excess of $100,000,000, the costs of such delays were staggering.

Previous to the successful blast of April 5, 1958, two attempts were made to destroy Ripple Rock, one in 1943, the second in 1945. On each occasion, drilling barges were anchored over the peaks and holes drilled into the rock, but the steel anchoring cables snapped so frequently that work had to be abandoned. During the 1945 attempt, 93 five-foot holes were loaded and shot. The result was the removal of some 3,000 tons of rock, causing only a slight indentation in the total mass.

Many suggestions for removing the twin peaks were offered. Aerial bombardment, torpedoing, an atomic bomb, all were considered, but rejected as impractical. In 1953 the Canadian Research Council proposed a totally different plan, the setting of explosives inside the peaks, rather than on their surfaces.

The proposal was accepted and a contract was awarded in 1955. Subsequently, at the 570-foot level a horizontal, seven feet square, 2,900 feet long tunnel was driven from Maud Island, through solid rock toward the base of the peaks. Four hundred feet from South Rock, the tunnel divided, extending to the base of each peak. All along the way, diamond drills probed at least 100 feet ahead of the work. From each end of the divided tunnel, vertical shafts were driven upward to a level 100 feet below mean water. At the top of each shaft, an intricate network of small "coyote" tunnels, just big enough for a man to crawl through, was built. Once more, diamond drills probed outward and upward in all directions, providing a margin of safety and establishing a more accurate contour of the twin peaks.

It was intended to locate the tunnels so that explosives stored therein could remove at least 40 feet from each peak. The blast not only had to shatter rock, but also had to move a heavy cushion of water which would tend to exert a blanketing effect on the force of the explosion. Then, too, the rock had to be forced up and out from the peaks to avoid clogging the channel. The outer tunnels were planned to explode first, so that when the central tunnels blew a fraction of a second later, the broken rock would be pushed off into deep water.

As soon as the "coyote" tunnels were completed, workers began charging them with Nitramex 2H, a relatively new, and extremely powerful, explosive developed by the Du Pont Co. For 4 weeks, day and night, the work went on until a total of 2,750,000 pounds of the explosive disappeared down the Maud Island shaft to find its way to the little tunnels within the twin peaks. Finally the detonating cord was placed.

Prior to the actual firing, the safety of persons living in the area had to be assured. Fortunately, the area had but few residents, making this part of the job relatively simple. They were evacuated and all roads leading to the site were blocked off. In Campbell River, a small community about ten miles away, people were asked to open their windows to minimize effects of concussion. A disaster situation was set up, with nurses, emergency hospital facilities, and additional police available for any mishap.

The time of firing the shot had to be carefully computed. The tide had to be as low as possible, without slack water, to minimize the blanketing

effect of the water, yet still provide sufficient tidal current flow to help wash broken rock into deep water. The current's set had to be such that the expected tidal wave would be southerly, to allow dissipation in the broad waters of Georgia Strait. Low atmospheric pressure, a southerly wind, and a fair cloud ceiling were additional desirable factors to minimize concussion and carry away the fumes of the explosion.

Finally all was in readiness and the count-down to zero hour began. At 9:31 a.m., April 5th, 1958, the firing button was pushed. Action was immediate. The water heaved and churned to the accompaniment of a guttural rumble and then a roar. The surface erupted in a gigantic cloud of mud, rock and water. It spread in a kaleidoscope of colors across the Narrows and then showered everything within a half mile radius as it subsided. In all, the blast lasted just 20 seconds, but its effects will be forever.

The water in Seymour Narrows churned, and boiled for more than 30 minutes after the explosion. Four hours after the blast, the word came through that 370,000 tons had sheared off the twin peaks of Ripple Rock to a minimum depth of 50 feet. The channel was clear. The project was an amazing success.

Ten miles away, in the little town of Campbell River, only those whose television sets were turned to the blast broadcast heard the noise. Not a shock was felt, not a window broken. The disaster corps silently packed their equipment and went back to their normal pursuits.

Thus it was that Ripple Rock passed into history. No longer will its twin peaks lie in wait to rip the bottoms from vessels feeling their way through the Narrows. To be sure, the tidal currents still run and run hard. But much of the boiling has subsided since there is room below for a greater volume of flow. Thanks to perseverance by the Canadian Government, plus 3 years of hard work, one of the world's worst navigational hazards is now just a memory.

AMVER

Merchant vessels at sea, especially those on transocean passages, are a vital addition to Search and Rescue organizations in time of emergencies. The success or failure of a particular case very often depends on information passed by a merchant vessel that happened to be in the area at the time of the incident. The value of the merchant ship in search and rescue operations is illustrated by the case of the missing MATS C–133 aircraft.

On May 27th at 1258 Greenwich time US Air Force Plane number 71611 departed Dover Air Force Base en route to the Azores. This plane last reported position over Cape May, and when no radio contact could be established an "alert" was declared. After an "all ships" broadcast was issued for the missing plane, the Italian liner *Leonardo Da Vinci*, then located at 39–04 North 48–06 West, reported hearing an unidentifiable radio signal on the international distress frequency of 500 kilocycles. *Leonardo Da Vinci* had not been able to get a direction finder bearing on this signal but was standing by in case the signal was repeated. The "distress phase" of this case was set and numerous military surface and air units were ordered to participate. Reports of debris sightings were sent to Coast Guard Search and Rescue Headquarters in New York. (In a search of this type, where the location of an aircraft presumed crashed or ditched is not known, it is extremely important to recover evidence of the crash to give search and rescue coordinators a center point for conducting an intensified search for survivors.) In this case aircraft sighted partially inflated liferafts and what appeared to be a nose wheel. The German freighter *Sankt Marien*, being the closest ship, was requested to divert and recover these objects. Recovery furnished positive identification that this gear was from the missing plane. The search was now concentrated in a smaller area. Continued efforts, however, produced no signs of survivors, and after 9 surface vessels had searched for 286 hours and aircraft had flown 985 hours, the active search was discontinued on June 3d.

The important point to remember is this: the assistance and cooperation given by the merchant vessels in this case was all-important; without their help it would have been next to impossible to define the search area, let alone arrive at a valid determination that there were no survivors from the crash.

Participation in the Atlantic Merchant Vessel Report System reached an all time high during May, with 1,672 vessels reporting 4,259 passages. This was due, in part, to increased activity in both the Gulf of Mexico and Gulf of St. Lawrence.

An electronic computer, such as the one used by AMVER, is an accurate high speed machine capable of handling large volumes of data. It is nothing more than a machine, however, and cannot compensate for inaccurate data fed into it. Errors are always possible in dead reckoning navigation. With this in mind, masters of ships sailing within the AMVER plotting area are urged to inform AMVER of deviations in their passages and any important speed changes.

The AMVER System, operated by the U.S. Coast Guard, plots ship positions from data voluntarily sent by a large number of merchant vessels, to provide rapidly, at any time, a list of vessels currently located in a given area. Such lists are called "surface pictures"; this information is important to ships and aircraft which need help, and to those who coordinate search and rescue. The AMVER system covers the Atlantic Ocean north of the equator, including the Gulf of Mexico and the Caribbean Sea. Merchant vessels of any flag need send relatively few and simple reports, as described in AMVER instructions, to any of 17 U.S. Government radio stations which pass them, without charge, to the AMVER Center in New York. Under Commander Eastern Area, USCG, the AMVER Center uses an electronic computer to handle the heavy volume of information and to enter current ship positions in the magnetic "memory" section of the electronic computer.

Further information about the AMVER program may be obtained by writing Commander, Eastern Area, U.S. Coast Guard, Customhouse, New York 4, N.Y., or to Commandant, U.S. Coast Guard, Washington 25, D.C. AMVER instructions are available at any Coast Guard District Office, Captain of the Port, or Marine Inspection Office at U.S. Atlantic or Gulf Coast Ports.

STABILIZING THE ROLL OF SHIPS

By J. Vasta, A. J. Giddings, and A. Taplin
Capt. J. J. Stillwell, USN
Hull Design Branch, Bureau of Ships

DURING THE PAST century naval engineers have made many attempts to reduce the rolling motion of a ship in a seaway. Sometimes these efforts were prompted by considerations of comfort, sometimes by military demands for a steadier gun platform. However, as the laws of ship motion have become better understood, a practical means of ship stabilization now seems possible.

Four general types of stabilization have been examined during a long history of technical development:

Solid weight transfer.
Water transfer in tanks (Frahm principle).
Gyroscopes.
External fins.

Prior to 1940, most of these stabilization systems had proved impractical because of unreliability, high cost, large bulk, heavy weight, or high power consumption. In recent years, however, ship stabilizers have been developed that can be made to work reliably, and for some special purposes can be economically justified.

HISTORY

As early as 1862 European designers carried out full-scale experiments on ships, but the United States had no comparable enterprise. The U.S. Navy did not attack the problem of roll stabilization seriously until the early 30's.

At that time some of the 10,000-ton cruisers built by the United States under Washington Treaty limitations were reported to be heavy and jerky rollers. This behavior, unpleasant to personnel on board, led the Navy to undertake limited investigations on rolling motion in a seaway. The Navy intended to apply the knowledge gained toward improving the rolling characteristics of the cruisers then under construction. One of the many schemes considered was a modified Frahm tank system of stabilization that was tried out on USS *Pensacola* and USS *Northampton* (figure 1).

The Frahm installations consisted of a pair of tanks, one on each side of the ship, open to the sea at the bottom, and air vented at the top so that the system could be tuned to the natural rolling period of the ship. Flooding nozzles, fitted with flapper-type shutoff valves permitted testing with and without the system in operation.

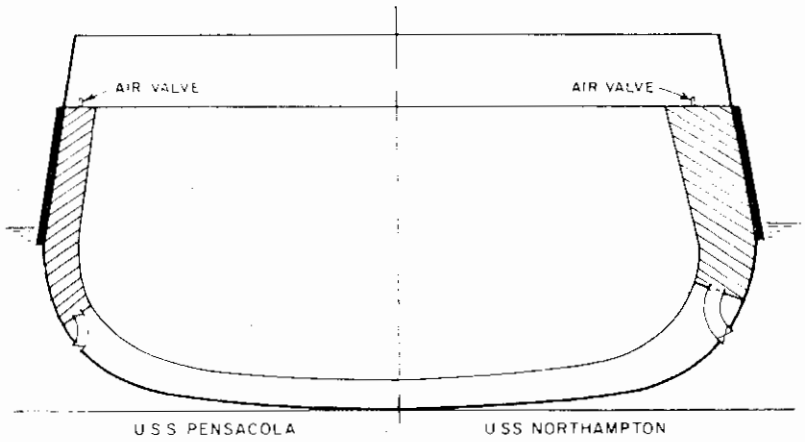


Figure 1. Passive-tank stabilizers, USS *Pensacola* and USS *Northampton*.

EFFECT ON *PENSACOLA*

The only reliable records of how the ship behaved with the tank stabilizers were obtained while the *Pensacola* was at anchor. Fairly uniform swells, estimated to be about 400 feet long and 6 feet high caused the ship to roll about 7 to 10 degrees from the vertical. Data from a roll recorder showed that on one of the test runs the amplitude was 7 degrees with the tanks dry. With the stabilizer in operation, maximum amplitude was reduced to 5.5 degrees—about 21 percent. Although that is not a spectacular showing, the conclusion was reached that the *Pensacola's* tanks might have been fairly effective in reducing roll if their capacity had been sufficiently large. Nothing is recorded about the performance of *Northampton*.

FRAHM ANTIROLLING SYSTEM

As previously stated, the systems installed in *Pensacola* and *Northampton* were modified Frahm systems. Frahm published studies of ship stabilization about 1910, but the pioneer system actually dates back to Froude. In 1874 Froude installed water chambers in the upper part of a ship to stabilize it against roll. Although the water tanks reduced rolling of the ship, the free-surface effect reduced the ship's stability unduly. Moreover, if synchronization should occur between the roll of the ship and the flow of water, the tanks as designed by Froude might have increased the ship's roll instead of damping it.

Frahm modified Froude's system by placing the horizontal leg or cross duct of a U-tube above the center of gravity of the ship. In this manner, the horizontal acceleration of the water became a stabilizing component. This effect was not in phase with the statical moment of the water in the vertical legs. For correct operation of the Frahm stabilizing system, the water in the tank must have a period of transfer approximately equal to the natural roll period of the ship. In early installations, the period of transfer was controlled by a valve in the air duct that connected the tops of the tanks (figure 2). Hence the air connection between the tops of the vertical legs of the stabilizer became an important feature of the system.

In later modifications of the Frahm system, the cross duct or horizontal leg of the U was entirely removed and the bottoms of the tanks were kept open to the sea (figure 3). In other systems, the tank tops were vented to the atmosphere, thereby eliminating the need for the air duct. The best engineering estimate of Frahm tank effectiveness in reducing ship roll, at near resonance with the frequency of the waves, is about 50 percent.

A logical development of the Frahm system was to pump the water from one leg of the U to the other, rather than rely on the ship's rolling motion

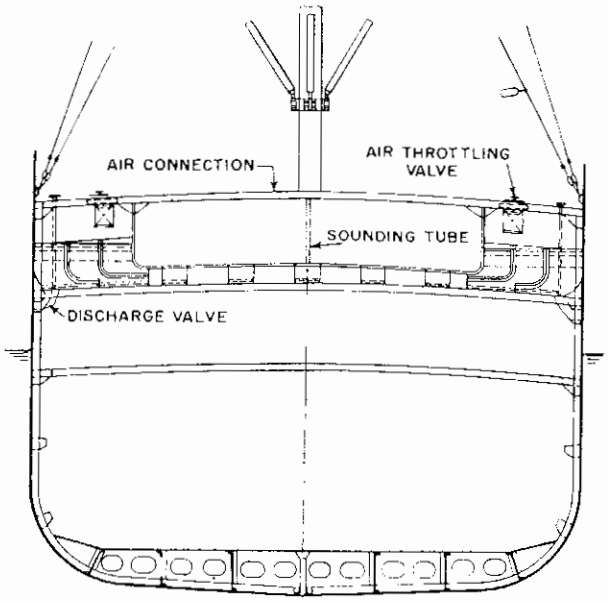


Figure 2. Frahm tanks on SS *Ypiranga*.

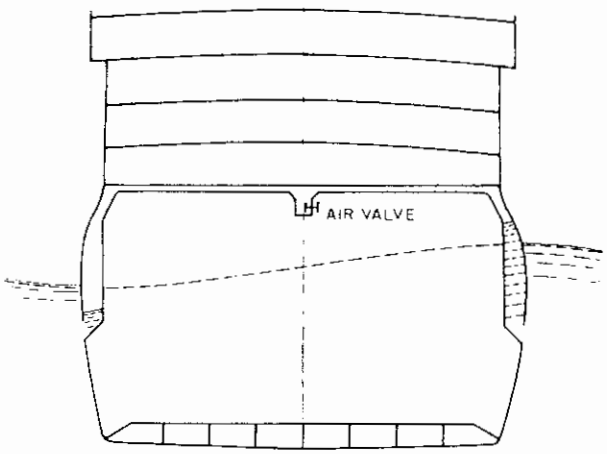


Figure 3. Frahm tanks on the *Deutchland*.

exclusively for the transfer. By so doing, a limitation of the passive-tank system with its dependence on resonance could be largely overcome.

The active counterpart of Frahm's passive tanks was conceived by N. Minorsky in the United States about 1928. Minorsky reasoned that a greater degree of stabilization would be possible if water were directly transferred at a high rate from one vertical leg of the U-tube to the other, in proper phase to develop a restoring moment.

On the basis of a small-scale laboratory test, a full-scale installation was made on the destroyer *Hamilton*. The stabilizing system included, in addition to the tanks, an accelerometer as a roll-sensing device, and a power-amplification unit driving a variable-pitch pump. Signals from the accelerometer actuated the variable-pitch impeller (essentially an axial-flow pump), which in turn controlled the amount of fluid transferred from one tank to the other. In still-water trials, activating the stabilizer made the *Hamilton* roll as much as 18 degrees from the vertical. Minorsky's theory and model tests indicated that the installation has sufficient capacity to stabilize the destroyer in a seaway that would produce a roll of 30 degrees. In actual operation, some very serious difficulties were experienced that could probably have been resolved by further development and refinements in the control parts of the system, but World War II broke out in 1939 and experimental work on activated tanks in the United States came to a halt.

The problem of controlling the rolling motion of a vessel in a seaway is presented in general terms only. The article was not written for the purpose of discussing such specific problems as, for example, the effect on vessel stability when stabilizing tanks are installed and used. Systems following the general principles discussed here have been installed on two U.S. merchant vessels, the SS *Matsonia* and the SS *President Roosevelt*. ED.

Almost a decade elapsed before interest in ship stabilization revived. In 1948, the Bureau of Ships resumed the work that had ended with the *Hamilton* trials. In order to use much of the special gear that had been salvaged from the *Hamilton*, full-scale testing was carried out on the USS *Peregrine*, a ship of the AM-371 class of minesweepers, whose displacement, metacentric height and natural period of roll were very close to those of *Hamilton*. The sea trials of *Peregrine* can only be considered the resumption of the 1939 tests. They were not spectacular by today's standards, but a 30 percent stabilization improvement was recorded and the Navy acquired information essential to the design of ship stabilization systems.

RESEARCH AT STANFORD UNIVERSITY

While tests were being conducted on *Peregrine*, the Bureau of Ships was supporting theoretical research on ship stabilization at Stanford University. This research resulted in refinements in the theory of passive and activated-tank systems, but the theoretical work at Stanford was not confined to tank stabilizers; activated hydrofoil systems were studied also.

ICEBREAKERS

Icebreakers roll heavily in open seas because of their round bottoms which are designed for ice operations. Bilge keels, which usually reduce much of a ship's roll, are wiped off in ice. It was decided to install passive tanks on the AGB-1 class icebreakers.

Trials were run on USS *Atka* (AGB-3), the first ship of the class to receive the tanks. The trials were run off Cape Hatteras on 24 March 1961. Preliminary analysis by David Taylor Model Basin of those portions of the records showing large and steady rolling indicates 50 to 60 percent reduction in beam seas. The roll amplitudes in the stabilized runs were 30 to 70 percent of those in the unstabilized runs, depending on the heading. The greatest effectiveness of the tanks was found to be with the seas off the bow, while the least effectiveness was in following seas. The difference in comfort aboard the ship was readily apparent.

The Commanding Officer of the USS *Staten Island* (AGB-5), based on operations with passive tanks between Seattle and the Arctic, reported:

"Maximum roll experiences was 35 degrees with roll to opposite side reduced by one-half and a quick righting of the ship. There did not appear to be too much reduction in initial roll when ship was nearly steady and a beam or nearly beam sea struck the ship. In weather with seas abeam, where steady rolls of 30 to 40 degrees would have been experienced prior to installation, a steady roll of 10–15 degrees was the resultant roll . . . Personnel sleeping on either side of the tank are not bothered greatly by the sloshing of the ballast back and forth . . ."

Full-scale trials have been too few to provide a thorough correlation of predicted and actual stabilizer tank performance. The trials so far reported have been limited in that sea-state measurements were not reliable or the sample time was short. The sea is a mixture of many waters, none of which may represent a "design condition." A valid correlation depends on the spectral-energy distribution of the waves and on the analytical procedures connected with random processes.

CONCLUSIONS

The principal applications for tank stabilizers seem to be in ships wherein various combinations of the following apply:

- Low-speed operations are a major characteristic.
- Hull penetrations for retractable fins are not practicable where retraction is required.
- Only *some* rather than *a lot* of stabilization is needed.
- Cost is more important than the degree of stabilization.
- Space and weight are available with little or no penalty to the ship's mission. The weight devoted to tank stabilizers was taken from ballast in the missile-range ships and from reserve fuel in the icebreakers.

The performance to be expected with tanks of the size used in Naval ships is about 50 to 60 percent overall reduction in rolling. Under wave conditions that would otherwise cause maximum rolling, roll reduction as high as 60 to 70 percent can be expected. The tank sizes that have given this performance range from 1 to 2 percent of the "at sea" displacement.

The selection of design conditions should take account of a realistic displacement and metacentric arm for "seagoing operation." For ships having wide variations in displacement in service, a condition two thirds to three quarters between light ship and full load has been used. Each type of ship should be considered individually. Through analytical design methods and bench model tests, successful operation can be reasonably assured.

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COAST GUARD OPENS FIELD TECHNICAL OFFICE IN NEW YORK CITY

LCDR WILLIAM D. BALL, JR., USCG

The Coast Guard has just established a Merchant Marine Technical Branch office under the Commander, Third Coast Guard District at 45 Broadway, New York. This Branch will act as an Eastern Field Technical Office and will handle plan approval for all new marine construction, conversion and alteration on vessels subject to Coast Guard inspection within the 1st, 3d, and 5th Coast Guard Districts, with the exception that plans for small passenger vessels will continue to be handled by the cognizant, local Officer in Charge, Marine Inspection. The jurisdiction of the new office geographically includes, the Eastern Coast of the United States from Maine through North Carolina.

The opening of this field Technical Office, is an effort to satisfy the increasing demands of the marine industry and to bring the Technical Staff closer to the inspection area. Up to now, plans submitted for approval action from the Eastern States, except those for small passenger vessels, were sent to Coast Guard Headquarters, Washington, D.C. It is intended by this change, to speed up and improve plan approval procedures and to facilitate discussion between industry and the Coast Guard with regard to technical problems of Merchant Marine Safety and the application of vessel regulations.

LCDR William D. Ball, Jr., has been designated as Chief of the new branch office which is the third one to be established by the Coast Guard. In 1958, a similar technical branch was established in New Orleans, La., to serve the southern states and Puerto Rico, and in 1960, a field office was opened in San Francisco, Calif., to serve the western states, Alaska and Honolulu.

Effective 5 July 1962, all required plan submittals for new marine construction, conversion or alteration for vessels subject to inspection and under the cognizance of the 1st, 3d, and 5th Coast Guard Districts, with the exception of plans for small passenger vessels under 65 feet in length subject to the regulations in Subchapter T, should be forwarded to:

Commander, Third Coast Guard District
(mmt)
Custom House, New York 4, New York

Four copies of each plan are required for submittal and one copy will be returned to the sender with approval or

other action indicated. Small passenger vessel plans should continue to be submitted to the local Coast Guard Officer in Charge, Marine Inspection.

Incidently, it should be noted that equipment plans requiring Type Approval by the Commandant, such as life saving and firefighting equipment and new boiler construction plans, etc. will continue to be approved at Coast Guard Headquarters.

Plans that are supplemental, or otherwise related to those previously approved or which are pending approval by Coast Guard Headquarters, or by an Officer in Charge, Marine Inspection, should be sent to the same activity until the submitting firm is specifically advised otherwise.

To assist in expediting plan approval action, and prevent considerable delay in some cases, persons or firms submitting plans should properly number or otherwise identify each plan. In addition, as much as is available of the following information should be included for classification and other purposes:

Vessel name and Official Number
Shipyard and/or Hull Number
Project Number
Type of Vessel (passenger, cargo, tanker, etc.)
Dimensions of Vessel
Number of Passengers
Type of Cargo
Route of Operation
Name of Owner
Place of Construction or Conversion

FAMILIAR WORDS TO AN OLD REFRAIN

What is so similar in every one of these accident reports?

"The ship lurched and the door closed on my finger."

"While I was clearing the work bench in the tool room, I moved a heaving line and a wrench slipped off the bench and hit me on the hand."

"While opening a case of eggs, the wire stuck me on my left thumb, splitting it."

"The door caught my left thumb. . . ."

"I was raising a hatch board on #6. It stuck and dropped on my index finger. . . ."

"I was taking a trunk from a cabin up the stairway—it slipped back and hit my leg."

"I was in the after engine room putting on a new steam pump, it slid on the floor plate and landed on top of my right foot. . . ."

In each one of these reports there is one thing in common; it never seems to be the man's carelessness that causes his own injury—it's always the fault of an inanimate object that rose up and assaulted him when he wasn't looking.

Extracted from *Seamen's Safety Guide.*

ROYAL NATIONAL LIFEBOATMAN RECEIVES COAST GUARD LETTER OF APPRECIATION

COXSWAIN FRED UPTON, RNLI, retired recently after 23 years of service with the English lifesaving service, the last 16 years as coxswain of the Walmer Lifeboat station. During retirement ceremonies in his honor, Mr. Upton is shown receiving the Commandant's letter of appreciation from Capt. H. L. Morgan, Senior Merchant Marine Detail Officer, Europe.

COXSWAIN FREDERICK UPTON
14, The Strand
Walmer, Kent

DEAR COXSWAIN UPTON: The United States Coast Guard is the principal agency of the United States charged with promoting safety of life and property at sea. Among its responsibilities is the operation of lifeboat stations similar to those of The Royal National Lifeboat Institution. There has always existed a common bond among seafaring men of all nations. Nowhere is this brotherhood better exemplified than amongst the men who have devoted their lives to saving others in distress.

It has been brought to my attention that you are retiring from the Royal National Lifeboat Institution after 23 years of service. On this occasion I would like to thank you on behalf of the United States Coast Guard for the assistance you have rendered to Americans in distress while a member of The Royal National Lifeboat Institution.

I have been advised that on 6 November 1944 you assisted in the rescue of 31 seamen from the grounded SS *Abraham Baldwin;* on 31 January 1946 you were serving as coxswain of the Walmer Lifeboat and directed the rescue of 49 seamen from the stranded SS *Luray Victory;* on 12 September 1946, as coxswain, you directed the rescue of 21 seamen from the stranded SS *Helena Modjeska;* on 24 December 1946, as coxswain, you directed the rescue of 43 seamen from the stranded SS *Northeastern Victory,* and on several occasions you assisted in the rescue of American airmen.

The success of these missions, each of which was performed under adverse and hazardous conditions, was due in large measure to your outstanding ability as a seaman and great personal courage. These achievements, which should afford you a large measure of personal satisfaction, are deserving of the highest praise. I hope that this letter will convey the appreciation of those who owe you so much and who, I am sure, join me in saying "Well done!" and wishing you health and happiness during your well deserved retirement.

Sincerely yours,

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

UNITED STATES COAST GUARD

ADDRESS REPLY TO:
COMMANDANT
U.S. COAST GUARD
HEADQUARTERS
WASHINGTON 25, D.C.

MVI
16 May 1961

Commandant's Action
on
Maritime Board of Investigation; collision between the SS *Aloca Corsair* and MV *Lorenzo Marcello* (Italian), Mississippi River, on 22 October 1960 with loss of life

The record of the Marine Board of Investigation convened to investigate subject casualty together with its findings of fact, opinions, and recommendations has been reviewed.

At 0416 CST, 22 October 1960, on a clear dark night, the combination passenger-dry cargo vessel SS *Alcoa Corsair* of U.S. registry collided in a meeting situation with the Italian freight vessel SS *Lorenzo Marcello* in the lower Mississippi River at Mile 32 APH in the vicinity of Tropical Bend Upper Light (ACLL 6933).

Approaching Tropical Bend Upper Light from New Orleans, the axis of the river changes from about 095° T at Mile 35 to 190° T at Mile 33 as it rounds Sixty Mile Point. From there to Mile 32 the river runs fairly straight, then begins a gradual left turn which continues for several miles.

The *Alcoa Corsair* was en route from New Orleans to San Juan, P.R., with 51 passengers, 99 crewmembers, and 1,535 tons of dry cargo. Her speed over the bottom with a ½ knot following current was estimated to be 18 knots. Approaching Sixty Mile Point the lights of the *Lorenzo Marcello* were first observed downriver across the point. Rounding Sixty Mile Point the *Marcello* came into view over the water. At 0412 while still swinging right and passing a heading of about 180° T, the green side light of the *Marcello* was observed ahead. The distance off was established to be 2 miles by radar. After a minute and a half during which time the bearing of the *Marcello* did not change appreciably and the green light continued to be visible, a two-blast signal was heard from the *Marcello*. The *Alcoa Corsair's* rudder was ordered left 10° and the two-blast signal was answered. The *Alcoa Corsair's* right turn carried through to a heading of 205.5° T before she started to swing left. Shortly after the order for 10° left rudder, the order was given for 20° left. The *Lorenzo Marcello* was very nearly dead ahead still showing a green light. At about 0415 with the two vessels approximately ½ mile apart, a danger signal was heard from the *Lorenzo Marcello* and was promptly answered. At the same time the *Marcello* was observed swinging to her own right. The *Corsair* continued left at full speed and at 0416 the bow of the *Lorenzo Marcello* struck the *Alcoa Corsair* at about a 35° angle on the starboard side between No. 2 and No. 3 holds.

The *Lorenzo Marcello*, en route from Houston, Tex., to New Orleans with 4,500 tons of general cargo was upbound in the Mississippi River making 13.5 knots over the bottom stemming a one-half knot current. After passing Empire, La., the *Marcello* took up a heading of 345° or 346° T with Tropical Bend Upper Light slightly on the port bow in order to angle over to the right descending bank and come up under Sixty Mile Point. In the meantime the downbound *Alcoa Corsair* was observed rounding Sixty Mile Point and close out her starboard side light. When the two vessels were between a mile and a mile and a half apart, the *Marcello* initiated a two-blast signal and received a prompt reply. As the *Corsair's* red side light continued to be visible off the starboard bow with no change of aspect, the *Marcello* witnesses claimed their vessel sounded another two-blast signal, not because of doubt but to reaffirm the previous exchange. The *Marcello* witnesses claimed further that this two-blast signal was answered, but all of the *Alcoa* witnesses denied that this second exchange of two-blast signals occurred. The *Marcello* then ordered hard right rudder, purportedly to alter course to parallel the west bank and because the vessel was believed to be getting close to that bank. About 1 minute before collision the *Marcello* sounded the danger signal. This was promptly answered by the *Corsair*. Until this time no change in the aspect of the *Corsair* was noticed. Both red and green side lights of the *Corsair* were then observed almost dead ahead of the *Marcello*. Moments before collision, as the *Corsair's* red light closed out, the *Marcello* shifted rudder to hard left and ordered her engine back full. Before either the rudder or engine order could take effect, the bow of the *Marcello* struck the *Corsair* at an angle of about 35° measured from the bow of the *Corsair* to the centerline of the *Marcello*.

The two vessels separated shortly after the collision. The *Alcoa Corsair* was beached on the left descending bank and the *Lorenzo Marcello* anchored upriver of the scene.

As a result of the collision, five passengers and five crewmembers were killed; six passengers and four crewmembers were injured aboard the *Alcoa Corsair*. There were no deaths or injuries aboard the *Lorenzo Marcello*.

REMARKS

Despite the conflicting versions of material facts, the Board's reconstruction of the events leading up to the casualty as set forth in the findings of fact and explained in the opinions is amply supported in the record and is considered to be a more nearly accurate account.

It is considered that the primary cause of this casualty was the failure of both vessels to navigate with caution. The initial failure on the part of the *Alcoa Corsair* to make a timely and sufficient alteration of course to port to insure a safe starboard to starboard passing as agreed upon was a major factor in the case. Her subsequent failure to recognize the dangerous situation developing and resultant failure to take timely measures to avoid or minimize the effects of the collision also contributed.

The *Lorenzo Marcello* similarly failed to recognize the increasing danger of the situation which should have been apparent and had she done so the fatal decision to turn toward the track of the *Alcoa Corsair* might have been avoided.

It is further considered that the responsibility for this casualty rests solely with the pilots of the two vessels. The situation was more than just a case of meeting vessels, but one of vessels meeting in a river where a knowledge of local conditions and customs dictated the need for the special qualifications of a pilot. Accordingly, the failures of the master of the *Lorenzo Marcello* and the watch

officer on the *Alcoa Corsair* to realize that their vessels were standing into danger or to conclude that their repective vessels were being improperly navigated prior to the time that collision was imminent are not deemed to be faults under the circumstances.

To the extent that there is no conflict with the foregoing remarks, the opinions of the Board are approved.

The Board's recommendations for action against the two vessels under 33 U.S.C. 159 are approved to the extent that there is evidence of violation of 33 U.S.C. 203 for failure to keep clear after assenting to a starboard-to-starboard passing. There appears to be no evidence of negligent operation on the part of the owners of the two vessels; hence the recommendation that action against them under 46 U.S.C. 526o be considered, is disapproved.

The recommendations of the Board that the evidence of negligence on the part of the pilots of the two vessels be referred to the American Pilots' Association for possible action are approved.

The Board's recommendations for further action against the master of the *Lorenzo Marcello* and the watch officer of the *Alcoa Corsair* are disapproved for the reasons set forth in paragraph 4 above.

With respect to the Board's recommendation, it is considered that the record in this case contains evidence of criminal liability within the purview of Title 18 U.S.C. 1115 on the part of the pilots of the two vessels. Accordingly this case will be referred to the Department of Justice for possible prosecution.

Subject to the foregoing remarks the record of the Marine Board of Investigation is approved.

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

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 7–62

MAY 18, 1962

Subj: Addendum No. 1 to "Notes On Inspection And Repair Of Steel Hulls", Enclosure (1) to Navigation and Vessel Inspection Circular No. 4–60

PURPOSE

To promulgate additional information regarding inspection and repair of steel hulls.

DIRECTIVES AFFECTED

Navigation and Vessel Inspection Circular No. 4–60 is supplemented hereby.

ACTION

Enclosure (1) to this circular contains additional guidance material for Coast Guard marine inspectors, vessel owners and shipyards relating to good practice in the inspection and repair of steel hulled vessels. Remove the enclosure and append it to Navigation and Vessel Inspection Circular No. 4–60.

Effective Date. Upon receipt.

ADDENDUM NO. 1 TO NOTES ON INSPECTION AND REPAIR OF STEEL HULLS

I. REPLACEMENT OF KEEL PLATING (Supplementary to Par. III(I) of Notes)

In recognition of local strength factors and also the additional corrosion to which keel plates are subject, as a result of being unavailable for painting when sitting on the keel blocks in drydock, keel plating is normally of greater thickness than the balance of the bottom plating. Taking account of the fact that a large part of this extra thickness may be regarded as an additional corrosion allowance, it is generally satisfactory to defer the replacement of keel plating until the wastage is somewhat more than would otherwise be considered acceptable. In determining the amount of such extension, consideration should be given to the condition of adjacent "A" strake(s). If the adjacent plating is in good condition and does not require replacement, the keel plating may be accepted provided the effective remaining thickness is not less than approximately 75 percent of the original thickness of the adjacent strakes and provided it is not buckled or otherwise damaged. If the adjacent plating is wasted so as to, itself, require replacement, it is generally wise to replace the keel plating even though it may be wasted no more than about 25 percent of its thickness.

II. JOGGLED LAPPED WELDED SEAMS AND BUTTS (Supplementary to Par. III(A) and IV(B) of Notes)

Joggled lapped seams and butts are particularly prone to excessive local deterioration because of the flexing which may take place at such joints and because they provide a pocket in which corrosive conditions may particularly develop. Accordingly, when inspecting plating containing joggled lapped joints, it is particularly important to check the condition of the joint itself and particularly the plating thickness in way of the joggle. Whenever replacements are found to be necessary, the renewing material should, as far as is practicable, be put in with flush seams and butts.

III. NON-DESTRUCTIVE EXAMINATION OF HULL WELDING (Supplementary to Par. V(H) of Notes)

Slugging, included slag, or submerged cracks cannot be determined by the surface appearance of welds. These defects however, can seriously reduce the strength of a welded joint and can provide the starting point for serious fractures. Section 26 of the American Bureau of Shipping Rules for Building and Classing Steel Vessels provides for radiographic or equivalent inspection of hull joints at important locations. Since any joints in the hull, including the upper decks within approximately at least the middle half length may be regarded as important, this rule is considered to provide a basis for requiring random spot checking of hull welding by means of radiographic or ultrasonic technique. To the extent determined necessary by experience in checking welding in the yard concerned, such spot checking should accordingly be accomplished. Yards should keep a record of the work performed by each welder. Any welder subsequently found to have been deliberately slugging welds should be subjected to disqualification procedures and may be subject to criminal prosecution.

MARITIME SIDELIGHTS

National Safety Council Awards for low accident rates during 1961 were recently presented to seven steamship companies. In the tanker division the awards went to Tidewater Oil Co., Socony Mobile Oil Co., and Texaco Inc. In the passenger-cargo division honors went to States Marine Lines, United States Lines, and Waterman Steamship Co. A special award for accident prevention on inland waters was given to Humble Oil and Refining Co.

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The privately owned United States Merchant fleet included 983 vessels of 1,000 gross tons or over on May 1, according to a report of the American Merchant Marine Institute. Also reported were 1,758 vessels in the National Defense Reserve Fleet, not including military auxiliaries.

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Completed recently at Todd Shipyard Corporation's Brooklyn facility was the conversion of a former LST into a self-unloading bulk carrier. The vessel, rechristened the *Noramar* and owned by the Marquette Cement Manufacturing Co. of Chicago, will be used to transport cement from Catskill, N.Y. to various eastern seaboard ports. The 328-foot, 11-knot vessel will carry a maximum of 20,000 barrels of cement.

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Recent casualty records point out that mariners navigating restricted tidal river waters should never place blind reliance upon the predicted times of slack or maximum water. Disturbing influences such as wind or unpredictable variations in river discharge, to name just a few, can cause considerable deviation from the predicted times and conditions.

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The 10,000-ton *Ancon* has been assigned to Maine Maritime Academy by the Maritime Administration, to replace the present training vessel, the *State of Maine*. The *State of Maine* will be assigned to the Texas Maritime Academy.

WATCH YOUR FOOTING

A CREWMAN recently attempted to free-up a bulkhead steam stop with a pipe wrench, using a length of pipe for additional leverage. When the valve abruptly came free he lost his footing, fell backwards and struck his head on an object behind him. No matter what the task—ALWAYS BE SURE OF YOUR FOOTING. ***Courtesy The Marine News.***

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Over 120 years of safe vessel operation was signalized recently as Admiral E. J. Roland, Commandant of the U.S. Coast Guard, presented the American Merchant Marine Institute's Jones F. Devlin Award to 38 American-flag merchant ships. Cumulatively, on last December 31, these 38 had registered a total of 44,096 days' operation without a lost-time personnel accident. Special honors were paid to two tankers whose records of operation without such an accident accounted for fifteen percent of the 120-year total. These were the *Dynafuel* of the Sun Oil Co., with an accident-free run of more than 12 years, and the *Texaco Georgia* of Texaco Inc., with more than six years.

A computer, designed for the Maritime Administration, to act as the "eyes and ears" of seagoing vessels may "virtually eliminate ship collisions," according to the N.Y. Journal-American. Designed to tie in with a ship's standard radar system, the computer was developed by Goodyear Aircraft Corp. Officials said it will give audible and visual warnings of collision courses, forecasting both relative and true courses of other ships 30 minutes in advance.

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It was announced that The Ship Safety Achievement Award itself will go this year to two ships: the *African Pilot* of Farrell Lines for her rescue of Navy airmen who crashed in a hurricane, and the *Dolly Turman* of Lykes Bros. Steamship Co. for saving the crew of the sinking Japanese ship *Fukuzan Maru*. The Distinguished Sea Rescue Award, given each year to ships of the Military Sea Transportation Service, will go to the USNS *Range Tracker* for an outstanding night recovery of a man overboard. Ship Safety Achievement Citations of Merit will be presented to the passenger liners *Atlantic* and *Independence* of American Export Lines and the freighter *Beaver State* of States Marine Lines for excellent rescue and assistance work at sea.

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A citation for excellent standards of shipboard sanitation was recently presented to the passenger and cargo fleet of Moore-McCormack Lines by the U.S. Public Health Service. A similar award was won by the company last year.

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The Bureau of Ships has announced the development of a new formula with which to predict the reliability of crankshafts in large diesel engine installations. The formula, developed by the Civil Engineering Department at Manhattan College at a cost of $73,000, should prove an invaluable aid in avoiding structural failure in marine propeller drives.

nautical queries

DECK

Q. Describe briefly the operation of an electro-hydraulic steering apparatus and the type of hand-operated emergency steering gear that may be provided with it.

A. A hydro-electric steering apparatus consists of a hydraulic ram or rams acting in cylinders which are connected by piping. The fluid in the cylinders is pumped from one end to the other to actuate the rams which are mechanically connected to a rudder cross arm or tiller. The fluid is pumped by variable stroke pumps which are driven by constant speed electric motors. A mechanical linkage between the rams and the pumps serves as a follow up system, putting the pumps in the neutral position when the rudder is in alignment with the wheel; the pumps may be actuated by telemotor, electric, or mechanical remote or local control. Emergency steering with a hydro-electric gear may be provided by a hand operated pump which may be substituted for the power operated pumps in the event of power failure by opening the valves in the piping connecting it with the cylinders and closing the valves of the power actuated pumps. Some vessels are provided with mechanical emergency steering apparatus for use to replace hydraulic gear.

Q. A vessel en route from Bermuda to Reykjavik, Iceland will most likely first encounter ice in the form of:

(a) Pack ice
(b) Icebergs
(c) Hummocked ice
(d) Pancake ice

A. (b) Icebergs

Q. Normal atmospheric pressure is:

(a) 1013.25 millibars
(b) 29.92 inches of mercury
(c) 760 MM. of Mercury
(d) 14.7 pounds/in ^{2}
(e) All of the above

A. (e) All of the above

Q. The probability of encountering gales in the North Atlantic may be determined from:

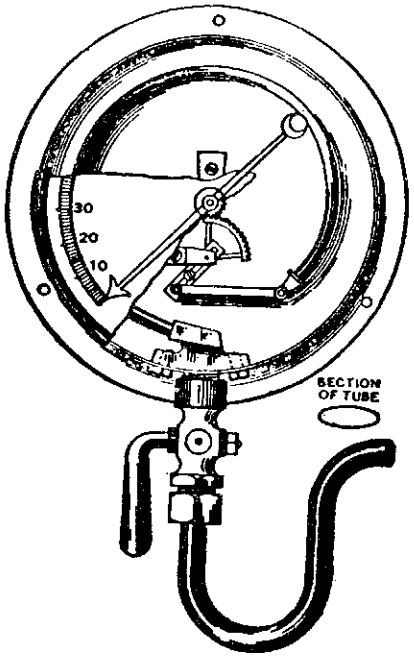
(a) The pilot chart
(b) A climalogical Atlas
(c) Notices to Mariner's
(d) Nautical Almanac
(e) Both (a) and (b) above

A. (e) Both (a) and (b) above

ENGINE

BOURDON STEAM GAGE

Q. Make a sketch of a Bourdon steam gage with the face cut away so as to show the controlling mechanism, and indicate in same sketch how it is connected to piping.



Q. (a) On passenger vessels fitted with magnet controls on doors, is it permissible to install holdback hooks or other devices to keep the door permanently open?

(b) On firescreen doors and other doors which are not normally locked on passenger vessels, what is the *maximum* list that the door is required to close against? If you were obliged to adjust the spring tension on such a door what other considerations should be borne in mind?

A. (a) No. Holdback hooks, or other means of permanently holding the door open, not subject to control station release, will not be permitted.

(b) Doors, others than those which are normally locked, such as from staterooms, fan rooms, lockers, etc., shall be of the self-closing type capable of closing against a 3½° list. In adjusting tension on springs for doors such as those described it is wise not to greatly exceed the requirements as this might impede exit of women, children, etc., and unless a regulating device is fitted on the door cause it to slam shut, rather than close gently.

Q. Fresh air breathing apparatus is required on board:

(a) All tank ships over 1,000 gross tons
(b) All passenger vessels over 1,000 gross tons
(c) All cargo vessels over 1,000 gross tons
(d) All of the above

A. (a) All tank ships over 1,000 gross tons

Q. The canister-type gas mask works on the principle of:

(a) Filtering
(b) Absorption
(c) Chemical combination
(d) Oxidation
(e) All of the above

A. (e) All of the above

Q. Crew training in use of the oxygen breathing apparatus is the responsibility of:

(a) Master
(b) Chief mate
(c) Chief engineer
(d) Both a and c

A. (d) Both a and c

Q. When entering a fuel tank which has *not* been certified gas free, you would use:

(a) A canister type gas mask
(b) A fresh air hose mask
(c) A flame safety lamp
(d) None of the above

A. (b) A fresh air hose mask

Q. Flame safety lamps use:

(a) Naphtha type fuels
(b) Gasoline fuels
(c) Diesel type fuels
(d) Leaded gasoline fuels
(e) Alcohol type fuels

A. (a) Naphtha type fuels

Q. If a person removed from a vapor-filled tank was not breathing, you would:

(a) Start artificial respiration immediately
(b) Loosen his collar and keep him warm
(c) Notify the chief engineer
(d) Call for a doctor

A. (a) Start artificial respiration immediately

AMENDMENTS TO REGULATIONS

[EDITOR'S NOTE.—The following regulations have been promulgated or amended since the last issue of the PROCEEDINGS. A complete text of the regulations may be found in the Federal Register indicated at the end of each article. Copies of the Federal Register containing the material referred to may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C.]

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

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

[CGFR 62–11]

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

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

Miscellaneous Amendments

Pursuant to the notice of proposed rule making published in the Federal Register on January 23, 1962 (27 F.R. 657–665), and the Merchant Marine Council Public Hearing Agenda, dated March 12, 1962 (CG–249), the Merchant Marine Council held a Public Hearing on March 12, 1962, for the purpose of receiving comments, views and data. The proposals considered were identified as Items I to IX, inclusive. Item I contained the revision of the rules and regulations for military explosives and hazardous munitions and Item II contained miscellaneous changes regarding dangerous cargoes, including ships' stores and supplies. This document is the fourth of a series covering the regulations and actions considered at this public hearing and annual session of the Merchant Marine Council.

In this document are the actions taken with respect to military explosives and hazardous munitions. A number of the comments were received and changes have been made from the proposals in 46 CFR 146.29–25 (fire and fire protection), 146.29–29 (smoking), 146.29–41 (weight per draft), 146.29–89 (portable magazine stowage), and 146.29–100 (classification, handling and stowage chart). The comments requesting that informational material entitled "List of military explosives and hazardous munitions" and "Diagrams showing typical construction requirements" be included in material published in the Code of Federal Regulations were rejected. The reason for this rejection is that material published in the Code of Federal Regulations is subject to special requirements, which provide for the codification of requirements having future force and effect. Publication of informational material in this Code would defeat the purpose for which the Code was established. One comment was received regarding Item II containing miscellaneous dangerous cargo amendments and the provisions in 46 CFR 146.22–30(c)(2) were revised. The proposal to add 46 CFR 146.26–5(b) (CG–249, II, p. 105), regarding application of requirements governing transportation of combustible liquids in portable tanks, is being included in the study of other proposals regarding "portable containers for combustible liquid cargoes." Therefore, this proposal will be studied further by a special committee before taking final action. The proposals in Items I and II as revised are accepted. These proposals were also described in the notice published in the Federal Register on January 23, 1962 (27 F.R. 657–658).

The provisions of R.S. 4472, as amended (46 U.S.C. 170), require that the land and water regulations governing the transportation of dangerous articles or substances shall be as nearly parallel as practical. The provisions in 46 CFR 146.02–18 and 146.–02–19 make the Dangerous Cargo Regulations applicable to all shipments of dangerous cargoes by vessels. The Interstate Commerce Commission in Order Nos. 52, 53, and 54 has made changes in the ICC regulations with respect to definitions, descriptive names, classifications, specifications of containers, packing, marking, labeling, and certification for certain dangerous cargoes, which are now in effect for land transportation. Various amendments to the Dangerous Cargo Regulations in 46 CFR Part 146 have been included in this document in order that these regulations governing water transportation of certain dangerous cargoes will be as nearly parallel as practicable with the regulations of the Interstate Commerce Commission which govern the land transportation of the same commodities. For those changes in 46 CFR Part 146, which involved changes other than shippers' requirements, the proposed amendments were considered at the Merchant Marine Council Public Hearing held on March 12, 1962.

The amendments to 46 CFR Part 146, which were not described in the FEDERAL REGISTER of January 23, 1962 (27 F.R. 657–658), are considered to be interpretations of law, or revised requirements to agree with existing ICC regulations, or relaxations of previous requirements, or editorial in nature, and it is hereby found that compliance with the Administrative Procedure Act (respecting notice of proposed rule making, public rule-making procedure thereon, and effective date requirements thereof) is unnecessary with respect to such changes.
(Federal Register of June 5, 1962, Part II.)

ARTICLES OF SHIPS' STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from 1 June to 30 June 1962, 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 Laboratories, Inc., 1450 Ferry Ave., Camden 4, N.J.:

- Certificate No. 521, dated 27 June 1962, CLARCOSOL.
- Certificate No. 522, dated 27 June 1962, CLARCOTHANE.
- Certificate No. 523, dated 27 June 1962, FORMULA 1450.
- Certificate No. 524, dated 27 June 1962, JC–3.
- Certificate No. 525, dated 27 June 1962, RUBE.
- Certificate No. 526, dated 27 June 1962, XL–1.
- Certificate No. 527, dated 27 June 1962, BLITZ.
- Certificate No. 528, dated 27 June 1962, SANIFLOR.
- Certificate No. 529, dated 27 June 1962, RUSTGARD.

Hagan Chemical & Controls, Inc., P.O. Box 1346, Pittsburgh 30, Pa.:

- Certificate No. 201, dated 1 June 1962, HAGAMIN (MARINE FORM).

MERCHANT MARINE SAFETY PUBLICATIONS

The following publications that are directly applicable to the Merchant Marine are available and may be obtained upon request from the nearest Marine Inspection Office of the United States Coast Guard. The date of each publication is indicated in parentheses following its title. The dates of the Federal Registers affecting each publication are noted after the date of each edition.

CG No.	TITLE OF PUBLICATION
101	Specimen Examination 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 (2–1–61). F.R. 9–30–61.
123	Rules and Regulations for Tank Vessels (1–2–62). F.R. 5–2–62.
129	Proceedings of the Merchant Marine Council (Monthly).
169	Rules of the Road—International—Inland (5–1–59). F.R. 5–21–59, 6–6–59, 5–20–60, 9–21–60, 4–14–61, 4–25–61.
172	Rules of the Road—Great Lakes (5–1–59). F.R. 1–7–60, 3–17–60, 5–20–60, 9–21–60, 4–4–62.
174	A Manual for the Safe Handling of Inflammable and Combustible Liquids (7–2–51).
175	Manual for Lifeboatman, Able Seamen, and Qualified Members of Engine Department (9–1–60).
176	Load Line Regulation (9–1–61).
182	Specimen Examinations for Merchant Marine Engineer Licenses (12–1–59).
184	Rules of the Road—Western Rivers (5–1–59). F.R. 6–6–59, 5–20–60, 9–21–60, 10–8–60, 12–23–60, 4–14–61, 4–25–61.
190	Equipment Lists (4–1–60). F.R. 6–21–60, 8–16–60, 8–25–60, 8–31–60, 9–21–60, 9–28–60, 10–25–60, 11–17–60, 12–23–60, 12–24–60, 5–2–61, 6–2–61, 6–8–61, 7–21–61, 7–27–61, 8–16–61, 8–29–61, 8–31–61, 9–8–61, 9–9–61, 10–18–61, 11–3–61, 11–18–61, 12–12–61, 2–9–62, 2–17–62, 3–15–62, 4–17–62, 4–25–62, 5–17–62, 5–25–62.
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel (6–1–62).
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (7–1–58). F.R. 3–30–60, 5–6–60, 12–8–60, 7–4–61, 5–2–62.
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 (8–1–61). F.R. 12–12–61.
249	Merchant Marine Council Public Hearing Agenda (Annually).
256	Rules and Regulations for Passenger Vessels (1–2–62). F.R. 5–2–62.
257	Rules and Regulations for Cargo and Miscellaneous Vessels (3–2–59). F.R. 4–25–59, 6–18–59, 6–20–59, 7–9–59, 7–21–59, 9–5–59, 5–6–60, 5–12–60, 10–25–60, 11–5–60, 11–17–60, 12–8–60, 12–24–60, 7–4–61, 9–30–61, 10–25–61, 12–13–61, 5–2–62.
259	Electrical Engineering Regulations (12–1–60). F.R. 9–30–61, 9–23–61, 5–2–62.
266	Rules and Regulations for Bulk Grain Cargoes (5–1–62).
268	Rules and Regulations for Manning of Vessels (9–1–60). F.R. 5–5–61, 6–28–61, 12–16–61.
269	Rules and Regulations for Nautical Schools (3–1–60). F.R. 3–30–60, 8–18–60, 11–5–60, 7–4–61, 9–30–61, 12–13–61, 5–2–62.
270	Rules and Regulations for Marine Engineering Installations Contracted for Prior to July 1, 1935 (11–19–52). F.R. 12–5–53, 12–28–55, 6–20–59, 3–17–60.
293	Miscellaneous Electrical Equipment List (3–7–60).
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf (10–1–59). F.R. 10–25–60, 11–3–61, 4–10–62.
323	Rules and Regulations for Small Passenger Vessels (Not More Than 65 Feet in Length) (7–1–61).
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 in the table of changes below.

CHANGES PUBLISHED DURING JUNE 1962

The following has been modified by Federal Register:

Dangerous Cargo Regulations, Federal Register, June 5, 1962, Part II (20 cents).

U.S. GOVERNMENT PRINTING OFFICE: 1962

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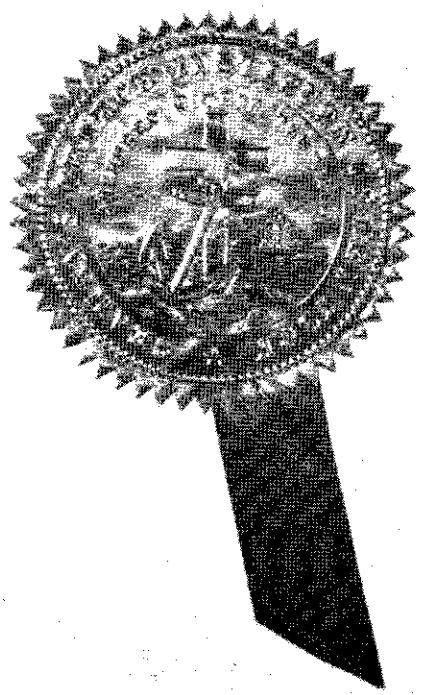

In witness whereof, We have hereunto set our hands and caused the Seal of the Institute to be affixed this fifteenth day of April, 1962.

Franklin E. Vilas
PRESIDENT

John M. Mulligan
DIRECTOR