PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

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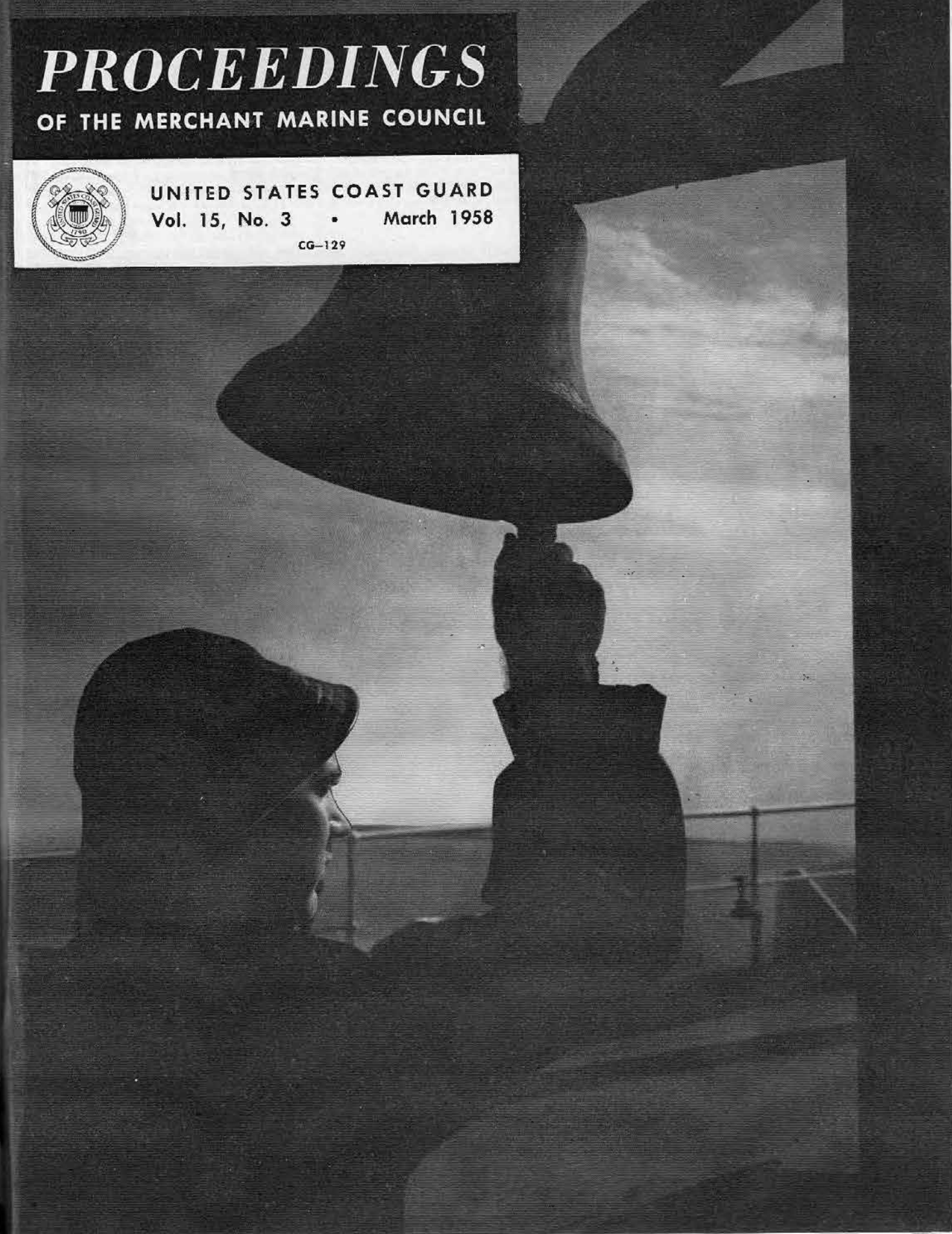

PROCEEDINGS

OF THE

MERCHANT MARINE COUNCIL

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OUR CARTOONIST

The man behind the cartoons which appear on these pages is Lieutenant Nathaniel F. (Nat) Main, USCG. This graduate of the California Maritime Academy and former merchant marine officer, was commissioned in the Coast Guard in 1950 under the provisions of Public Law 219, and presently is assigned to the Officer in Charge, Marine Inspection, San Francisco.

Receiving his original deck license in 1941, LT Main sailed in various merchant ships during and after World War II including the *Alabaman, Puerto Rican, Matsonia,* and *Monterey*. After sailing as Chief Mate in the *Monterey* he joined the academic staff of the California Maritime Academy as deck officer and instructor in navigation and seamanship.

Except for a year's training with Pacific Far East Lines, Inc., in Industry Training, LT Main has been attached to the West Coast Coast Guard office since 1952. Married and father of two children he resides in Concord, California. In May of this year he will be the first "219'er" to be named commanding officer of a Coast Guard Cutter with his assignment to the cargo ship *Nettle* (WAK-169) stationed in the Philippines.

RADAR AND WEATHER

By Lawrence E. Truppi

U. S. Weather Bureau

With the increasing use of marine radar on merchant vessels proper interpretation of radarscope displays becomes essential.

One of the most common phenomena which appear on ships' radars is echoes from precipitation in the atmosphere; the term "precipitation" includes rain, hail, snow, sleet, and drizzle.

Most marine radars contain special circuits (Anti-Clutter, STC, FTC, Receiver LIN-LOG) whose functions are to reduce precipitation echoes or sea return on the radarscope so as to reveal any objects which might be obscured. However, in order to employ anti-clutter circuits to their best advantage the person operating the radar must be able to recognize the various forms and configurations of precipitation echoes and adjust the radar set accordingly.

In addition, valuable meteorological information concerning the location of thunderstorms, squall lines, or tropical storms may be observed on a radarscope.

This discussion will consider the recognition of a few types of precipitation situations and atmospheric conditions commonly encountered at sea and their appearance on the PPI scope of a marine radar. The manufacturer's operator's manual should be consulted for precipitation anti-clutter adjustments since these vary from radar to radar.

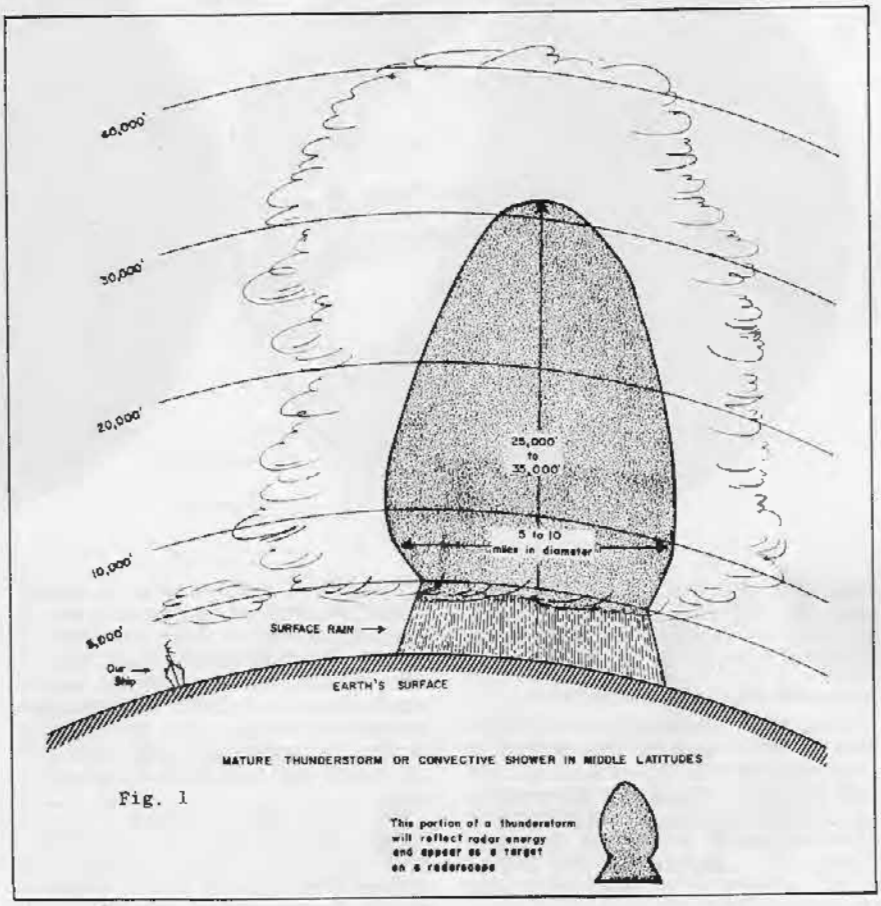


Fig. 1

FIGURE 1.

This drawing roughly illustrates the section of a mature thunderstorm which will reflect radar energy. Radar energy will reflect from raindrops suspended in, falling through, or falling out of clouds and *not* from the clouds themselves. The diameter of the water droplets which compose a cloud are about 1/100th, the diameter of any raindrops formed within the cloud and the dependence of the radar echo from water drops upon the diameter is such that, at a given distance, the echo from raindrops is about a million times stronger than that from cloud droplets.

Since the radar echo from nonprecipitating clouds (this includes fog) is small, the average marine radar will not display any indication of clouds on the PPI scope. However, rain, hail, drizzle, snow, and sleet will be detected and displayed. Radar echo intensity from snow is about 1/5th of the echo from an equivalent raindrop, depending upon the size and concentration of the crystals or flakes.

CROSS SECTION

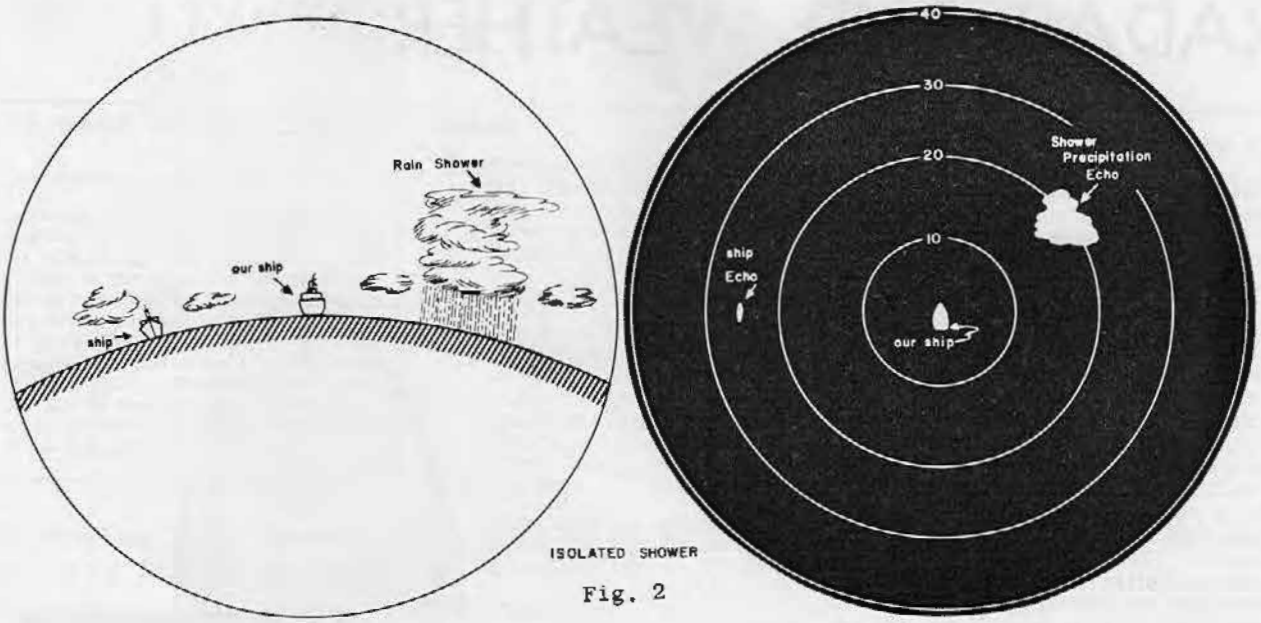
Figure 1 is a cross section through a typical thunderstorm or convective shower at its peak intensity. The distribution of raindrops in nature is by no means as symmetrical as represented here, but the drawing adequately represents the distribution of rain within a good sized convective shower. As a shower grows during its life cycle the distribution of rain or area of radar reflectivity will grow with it, and as the storm dissipates the radar echo on the PPI scope will shrink accordingly.

A heavy shower may present a region of radar reflectivity 5 to 10 miles in diameter and up to 30,000 ft. in height. Because of the large vertical extent showers become visible on radarscopes at extreme ranges, 30 to 40 miles, when radar targets such as ships or low lying land masses are below the radar horizon. The portion of a shower which reflects radar energy is continually changing in height and width, unlike land or ship targets. A single precipitation echo will grow to its maximum height and width in from 20 to 40 minutes, and then rapidly dissipate in about 15 minutes after reaching its maximum dimensions.

ISOLATED SHOWERS

Individual convective showers or thunderstorms may be displayed on radarscopes in any number of cellular forms, but usually they appear as ragged ellipses or circles. The heavier the rainfall associated with a particular storm, the more intense or brighter will appear the associated radar echo on a radarscope.

Precipitation echoes from showers often appear as clusters in which individual shower echoes are observed to grow, mature, and dissipate. When not employing anti-clutter circuits a precipitation echo may appear as intense as nearby ship or land echoes. However, radar echoes from showers may be distinguished from those of



ISOLATED SHOWER

Fig. 2

ships or land by noting, (a) the larger size, (b) the rapid change in area, and (c) the irregular edges peculiar to precipitation echoes.

LINE OF SCATTERED SHOWERS

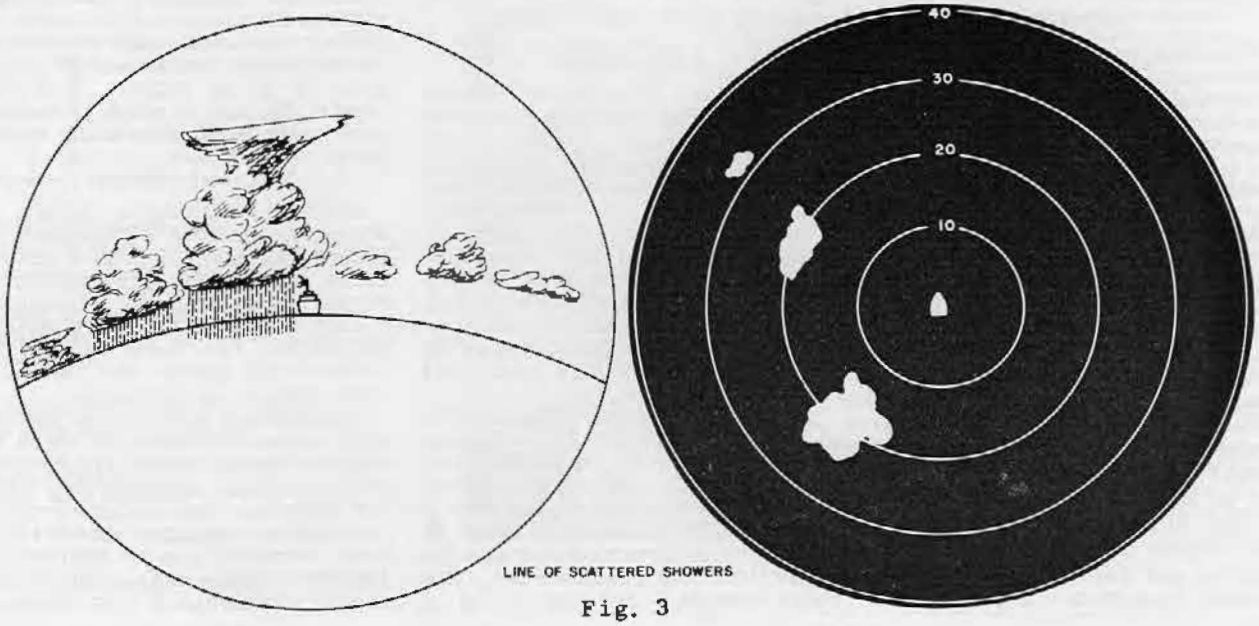
Separate shower echoes often appear to form broken lines which in time move across the radarscope. A line of echoes does not necessarily indicate the presence of a cold front since scattered showers or thunderstorms often appear to travel in line with one another as they drift with the wind.

As the radar approaches a shower echo the storm will appear to grow in size and intensity although there is no actual change in the storm. This is due to the nature of radar waves which will return more energy from nearby raindrops than from those farther away although the diameter and number of raindrops remain constant.

The Logarithmic Receiver Circuit (LOG), if available, will automatically correct for this condition and present precipitation echoes closer to their true size and intensity at all ranges. Sensitivity Time Control (STC) circuit can be used in place of, or in addition to, the LOG circuit. However, STC may be limited in some radar sets to very short ranges, 8 or 10 miles, since it is usually employed to reduce sea return. Receiver LOG circuits may be used on all ranges.

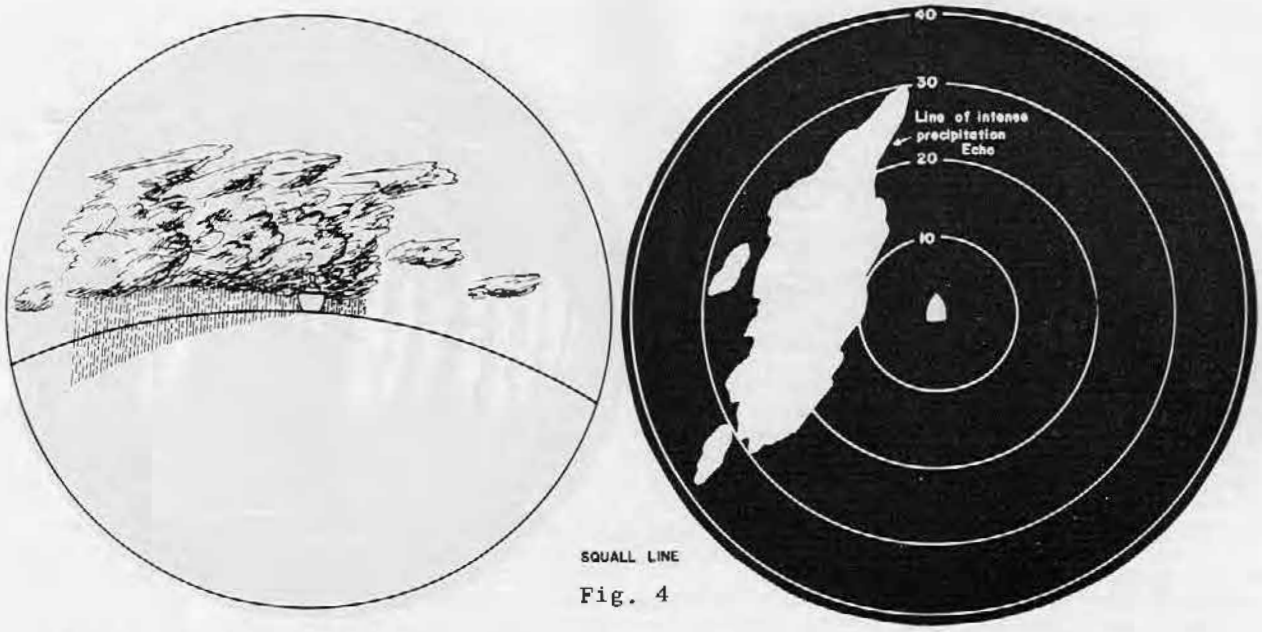
SQUALL LINES

This drawing illustrates how a squall line might be displayed on a marine radar. The term "squall line" refers to any extended line of convective showers or thunderstorms often



LINE OF SCATTERED SHOWERS

Fig. 3



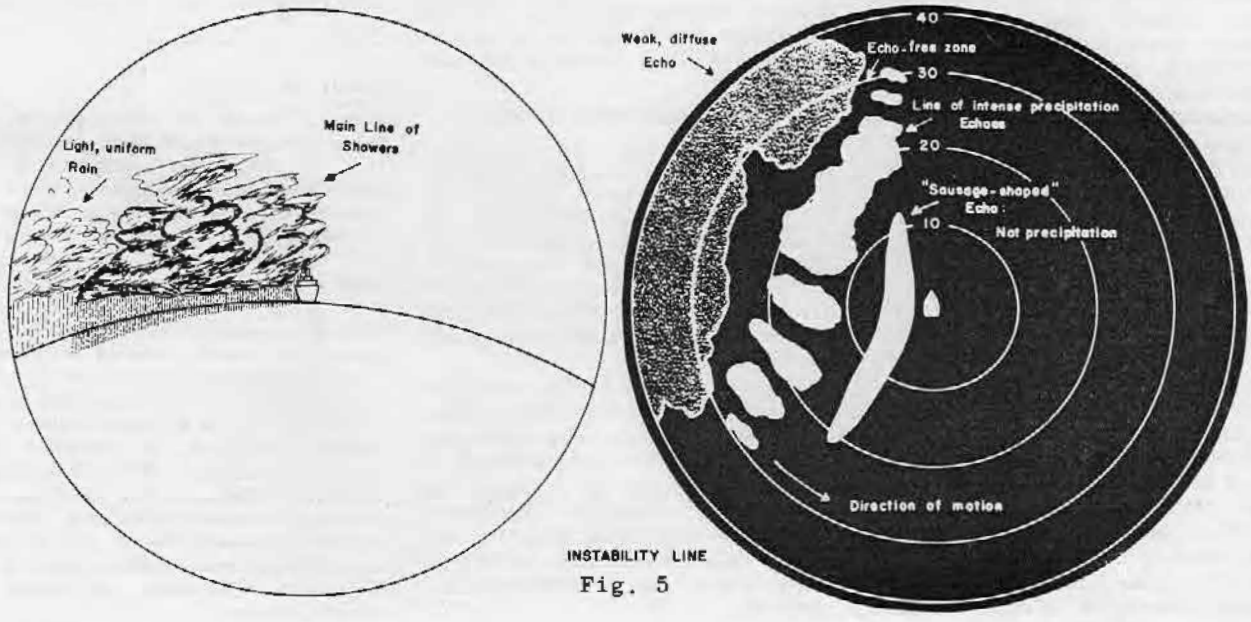
SQUALL LINE

Fig. 4

associated with a surface or upper air cold front. It may be ahead, along, or behind the front. Radar will detect only the precipitation associated with the front and not the front itself. Note, in this example, how the individual shower echoes have merged into a solid, continuous line. This phenomenon is by no means unusual, and is a possible indication of heavy rain, strong, gusty winds, with accompanying lowered visibility.

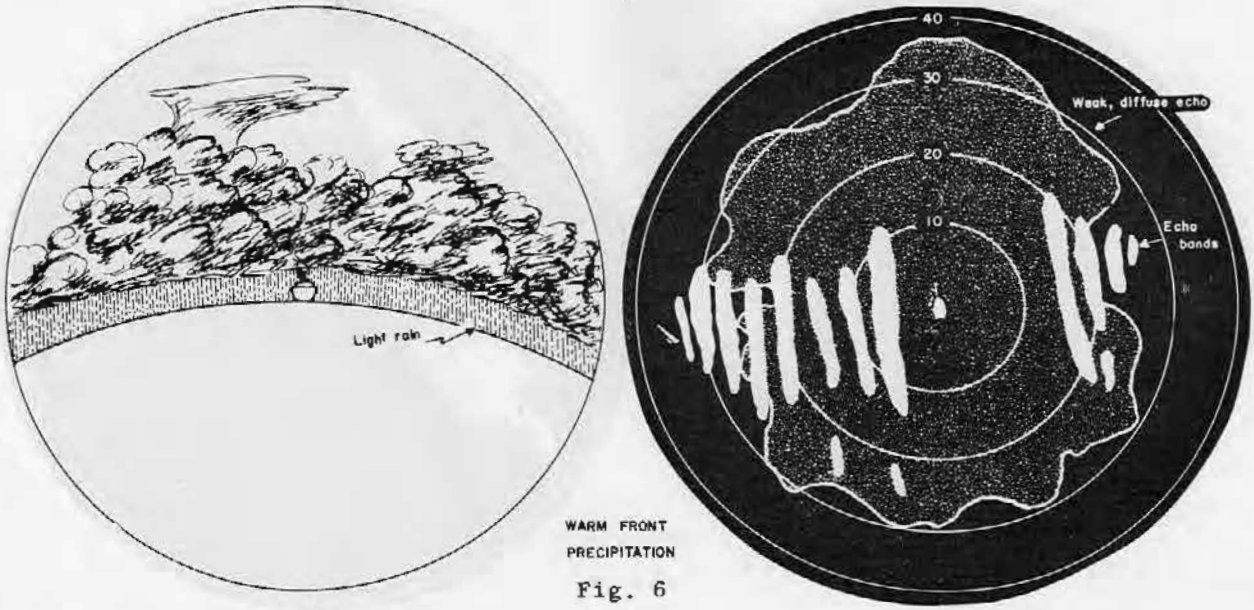
By viewing a squall line on radar it is often possible to pick out the breaks in the echo line where the weather might be less severe. If the squall line is overtaking the ship, the width of the echo and its speed gives an indication of the duration of the approaching weather. If the marine radar operates at X-band frequencies (3.2 cm) the rear edges of the squall line echo may be indistinct due to radar wave "attenuation". This occurs when the transmitted radar energy becomes progressively weakened as it is absorbed and scattered in passage through areas of heavy precipitation. As a result there will be little or no energy left to reflect from precipitation or other objects to the rear of the heavy precipitation.

An indication that attenuation is occurring is a diffuse or fuzzy rear edge of the precipitation echo, while the edge nearest the radar remains distinct. As precipitation moves over a radar-equipped vessel the squall line will appear to shrink as heavy rains surround the radar, and attenuation occurs in all directions. At this point, if attenuation is severe, the precipitation may appear to be almost evenly distributed in a circle around the ship as the further ends of the line disappear.



INSTABILITY LINE

Fig. 5



WARM FRONT PRECIPITATION

Fig. 6

After the squall line has passed the precipitation echoes assume the line form once more. The echo line will appear to grow and intensify as it approaches the radar unless the receiver LOG or STC circuits are employed to counteract the effect of decreasing range, and the opposite condition will prevail as the echo line retreats from the radar unless the proper circuits are employed.

Unfortunately there are no circuits which can counteract precipitation attenuation. However, some marine radars operate at S-band frequencies (10 cm), and such sets are less affected by precipitation attenuation than X-band sets. Attenuation through snow is negligible at any wavelength. At ranges less than 10 miles ship or land targets are usually distinguished at all radar wave lengths with the use of appropriate anti-clutter circuits, since heavy precipitation does not have the opportunity to weaken radar energy significantly at short ranges.

INSTABILITY LINES

An instability line is an extended non-frontal line of convective showers or thunderstorms which may be in the incipient, active, or dissipating stage. In the active stage an instability line can take a number of configurations on a radarscope, but Figure No. 5 shows one which is characteristic of the phenomenon.

On a radarscope the instability line may take the form of, (a) a "sausage-shaped" echo (not precipitation) which travels in advance of and faster than the line, (b) the main storm belt which consists of a line of intense precipitation echoes similar to a squall line, (c) an echo-free zone, and (d) a large area of light, uniform precipitation behind the main storm belt.

The nature of the sausage-shaped echo has yet to be determined, but it is not precipitation as it has been observed to pass over a radar station in clear air. The main storm belt has the characteristics of a squall line with heavy precipitation, gusty winds, and low visibility. To the rear of the main storm belt is observed a wide diffuse echo typical of light rain or drizzle. Careful observation of the radarscope can determine, as in the case of squall lines, breaks in the main storm belt.

WARM FRONT PRECIPITATION

This illustration represents the light, uniform precipitation usually associated with warm fronts as it might appear on the PPI scope of a marine radar. Interpretation of radar displays of warm front precipitation is more difficult than the interpretation of echoes from convective shower or thunderstorm precipitation (figures 1–5).

The area covered by the precipitation is much larger, and it can appear in any one of many echo configurations. Warm front precipitation is sometimes evident as a sheet-like echo, diffuse or milky in appearance, or it may be observed as many narrow, closely spaced, parallel bands of echoes which form a widespread rippled area.

Convective showers or thunderstorms are often imbedded within warm frontal precipitation, and are revealed on radar by the characteristic intense cellular echo. Since the precipitation from low-altitude nimbostratus clouds, unlike convective precipitation, does not extend to great heights, marine radars may not be able to detect the precipitation when operating at long ranges as the precipitation may be beyond the radar horizon. When this occurs the echoes appear as a large diffuse mass concentrated about the center of the radarscope, slowly fading and merging into blackness near the rim of the

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ABOUT THE AUTHOR:

Presently assigned as Meteorologist at the National Weather Records Center at Asheville, N. C., Mr. Truppi was graduated from the Massachusetts Institute of Technology in 1953 with the degree of Bachelor of Science in Meteorology. Upon graduation he served with the U. S. Army Signal Corps as a weather officer, and was assigned to the Signal Corps laboratories at Belmar, N. J. Working in support of this famous radar laboratory, he became interested in the new science of Radar Meteorology, and upon separation from the U. S. Army in 1955, he enrolled at Texas A & M College to further his studies in this field. He graduated from Texas A & M College in 1957 with the degree of Master of Science, and has been employed by the U. S. Weather Bureau since. This article first appeared in the *Mariners Weather Log*, published by the Weather Bureau, U. S. Department of Commerce, and edited by Gerald C. Bristow.

radar picture. This gives the false impression that the ship is at the center of the storm, and the storm is moving along with the ship.

Warm front weather conditions are usually accompanied by periods of fog and generally poor visibility. It is therefore important to eliminate as much of the precipitation clutter as possible in order to locate nearby ships, land masses, or buoys. This may be accomplished by using as short a radar range setting as possible and employing the radar's anti-clutter circuits to their fullest extent.

TROPICAL STORMS

Tropical cyclones having wind force 12 or above (64 knots or more) are commonly known as hurricanes, typhoons, cyclones, baguios, or willy-willies. Radar studies of these storms have revealed that most of the precipitation associated with the storm takes the form of intense spiral bands of echoes which rotate about a central mass or core of echo corresponding with the rain around the "eye" of the storm.

The spiral bands of echoes rotate in the same direction as the winds of the storm, counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere. Individual echo cells which compose each spiral band move along the spiral toward the storm's eye. As in the case of squall lines the individual echoes are often joined together to form a solid, rotating spiral band of echo.

When the storm moves inland or recurves into higher latitudes the spiral bands usually merge, lose the spiral configuration, and take on the appearance of an intense warm frontal type echo.

Unfortunately, the average commercial marine radar is limited to a maximum range of 30 to 40 miles, and the diameters of tropical cyclones can be from 100 to 400 nautical miles. Therefore, the radarscope would probably show only segments of the spiral bands at a given time. It would be almost impossible to view the entire storm.

Tropical storms are also accompanied by high seas and high winds which result in an erratically swinging radar antenna, a large area of sea clutter, and an atmosphere filled with sea spray. The combined effects of heavy rain and sea spray present a serious problem of attenuation, and make the identification or location of specific features, such as the storm's eye, a difficult task.

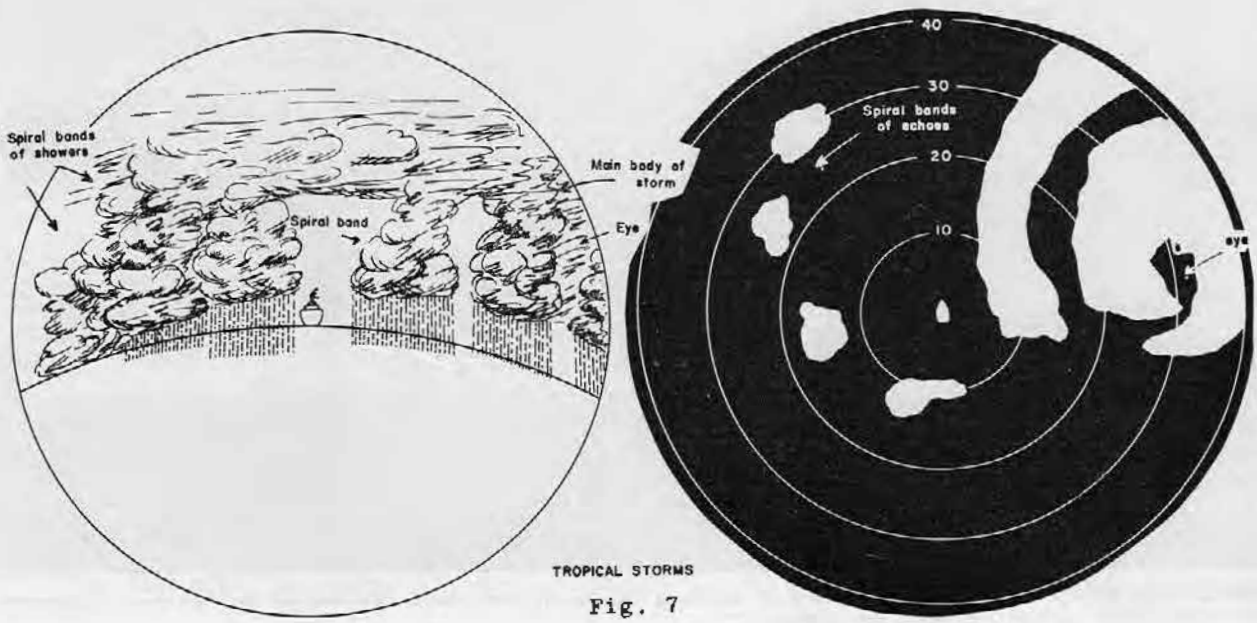
A clear "radar eye" may or may not be present depending upon the presence or absence of rain or sea spray at the center of the storm, and in addition, false radar eyes are sometimes observed as breaks in the spiral bands and are mistaken for a clear area at the eye of the storm.

A ship's radar can be an important adjunct to radio weather forecasts when tropical storms are known to be in the vicinity. Since spiral bands may precede the main body of the storm by 50 to 100 miles, even a segment of a spiral band and its motion viewed on a radarscope can indicate the presence of the storm and the relationship of the vessel to the storm's center.

SUMMARY

The following are some rules of thumb concerning weather phenomena and marine radar.

1. Maximum range settings are used to locate areas of precipitation and the logarithmic receiver circuit, if available, should be employed.
2. The brightest, most intense, or fastest moving precipitation echoes on the radarscope are probably associated with heavy rain, and generally stormy conditions. Light, diffuse echoes indicate drizzle or light rain.
3. Breaks in a line of echoes may indicate areas of less severe weather.
4. Wide spread precipitation appears as a large sheet-like echo centered at the ship, and appears to move along with the ship.
5. Heavy rain or sea spray will severely attenuate or limit the range of X-band sets and S-band sets to a lesser extent.
6. To eliminate precipitation echoes the shortest range setting practicable is used and anti-clutter circuits should be employed.
7. It is not advisable to permit the radar to stand idle. Radarscope interpretation requires *experience;* there is no substitute for it. In addition, some manufacturers advise that radar equipment be operated at least two hours per week to prevent condensation of moisture within the equipment case which might cause arc-overs in high voltage circuits.



TROPICAL STORMS

Fig. 7

1958 INTERNATIONAL ICE PATROL

Man with all his ingenuity has found no way to control the iceberg menace in the heavily traveled North Atlantic sealanes. He can only do the next best thing—observe, chart, study, and warn!

Every year about this time some Arctic ice drifts southward where it becomes a danger to navigation. Huge bergs, calved from the West Greenland glaciers, have found their way into the Labrador current and have been carried to the steamer lanes.

To help reduce this hazard, the International Ice Patrol maintains a constant watch over these vital sealanes to report the presence of floating dangers to navigation. The Patrol, which functions under the Coast Guard, has been in operation since 1913, having been established after the tragic sinking of the liner *Titanic*.

Early each year, usually starting late in February or early March, the Coast Guard resumes operations and services of the International Ice Patrol. The primary objective is to ascertain the location and drift of icebergs and field ice which endanger, or soon may endanger shipping in the vicinity of the Grand Banks of Newfoundland, and determine the southwestern, southeastern, and southern limits of that ice for the guidance and warning of shipping.

FUNCTIONS OF PATROL

To accomplish this objective, Commander, International Ice Patrol uses aircraft based at Argentia, Newfoundland for aerial ice observations, a vessel for surface patrol when necessary, and a vessel for production of current charts. The Ice Patrol collects ice, weather, and sea temperature reports from shipping and aircraft traversing the ice patrol area, evaluates all ice information in the light of meteorological and oceanographic conditions, and by means of the radio and landline facilities at Argentia, communicates to shipping the ice situation in the Grand Banks area.

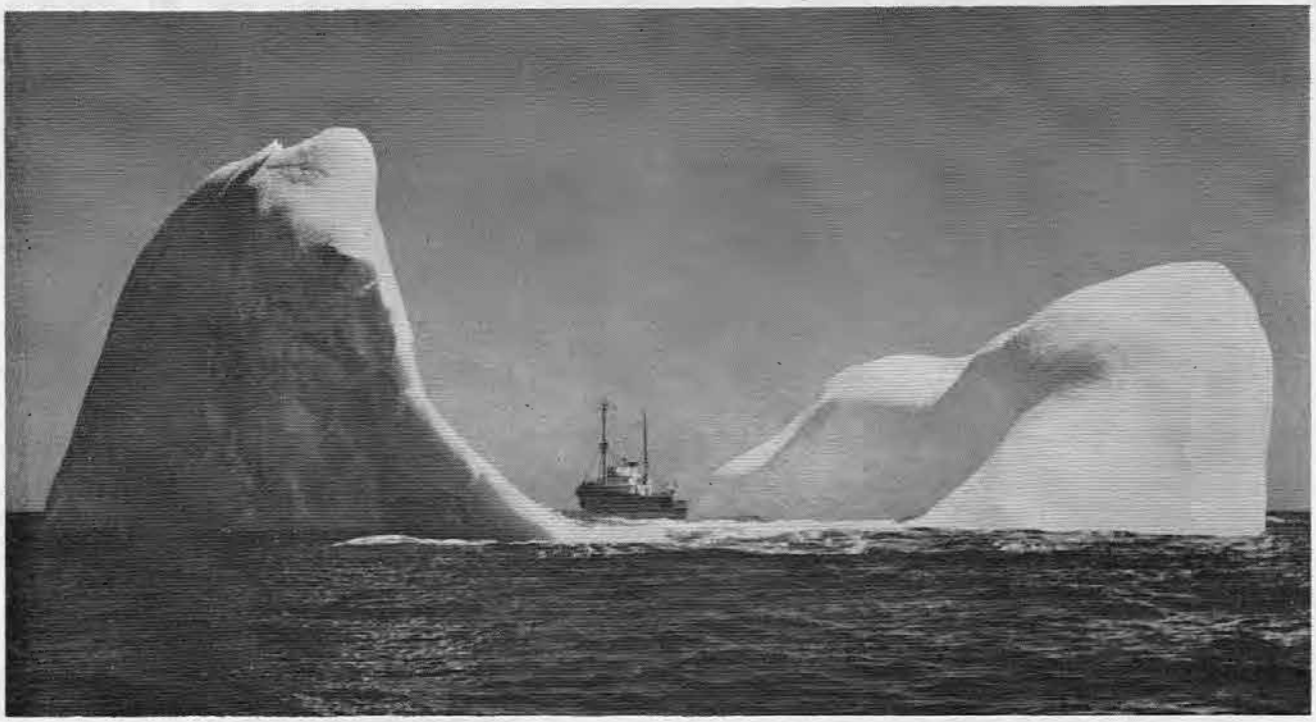
Each ice bulletin broadcast by U. S. Coast Guard Radio Argentia, NIK, will contain a request for all ships to report any ice sighted, and when in the area between latitudes 39° N and 49° N longitudes 42° W and 60° W to report every 4 hours their position, course, speed, visibility, sea temperature, and weather conditions. These reports by shipping are of the utmost importance to the International Ice Patrol.

During periods of low visibility or low ceilings when aerial ice observation is rendered ineffective, ice reports by shipping are invaluable in aiding the Patrol to relocate drifting ice and to keep the position of that ice, as reported in ice bulletins, up-to-date. The visibility reports are of considerable value in planning ice observation flights to avoid areas where poor visibility precludes effective air scouting and to concentrate on other areas.

VISIBILITY REPORTS

Visibility reports also are useful in deciding whether or not special warnings on ice conditions should be broadcast. Sea temperatures reported to the Patrol are used to construct isotherm charts employed in estimating ice melting rates and detecting shifts in the branches of the Labrador Current. Wind data is used in estimating set and drift of ice, especially field ice, and in forecasting weather for the purpose of planning ice observation flights.

In reporting ice to NIK, it is important that certain information be furnished in order that the report be evaluated correctly, especially from the standpoint of ruling out occasional erroneous reports and obviating unnecessary searches and warnings to shipping. The information desired is



PICTURESQUE BUT DEADLY—that's a thumbnail sketch of an iceberg like the one seen above. Dwarfed by this huge chunk of Greenland glacier is the 213-foot seagoing Coast Guard tug *Acushnet*.

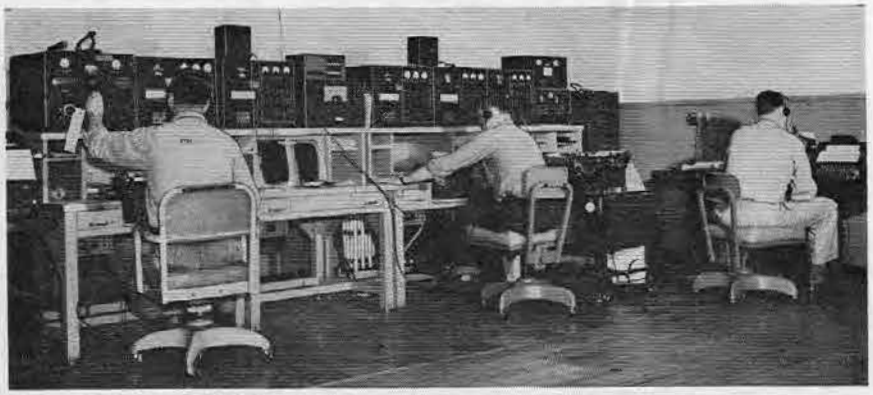
(*a*) the type of ice sighted, i. e., berg, growler or field ice (NOTE: If a radar target is reported which is believed to be ice but is not actually sighted visually, it should be reported as a radar target, NOT as ice, berg, growler or field ice), (*b*) the position of the ice (not the position of the reporting ship), (*c*) the sea temperature at point of closest approach to the ice, (*d*) weather and visibility conditions.

In view of the heavy reliance placed by Commander, International Ice Patrol on the reports of ice, visibility, sea temperatures and weather from shipping, all ship masters are strongly urged to make these reports. It is realized that ships with but one radio operator may find it impracticable to report every four hours as requested. It is suggested that these ships prepare four hourly reports but delay transmitting them until the radio operator comes on watch. Such delay is undesirable, but a delayed report is much better than no report.

ANOTHER ICEBERG is pinpointed! Reports from aircraft and surface ships are marked on this chart in the Newfoundland Ice Patrol Headquarters by Lieut. Commander A. J. Bush, USCG.

ICE BULLETINS

Ice bulletins will be broadcast twice daily, at 0048 and 1248 GMT, by U. S. Coast Guard Radio Argentia (NIK) on 155, 5320, and 8502 kcs. Each broadcast will be preceded by the general call CQ on 500 kcs with instructions to shift to receive on 155, 5320 or 8502 kcs. After shifting to these frequencies, NIK will transmit test signals and the International Ice Patrol radio call sign NIK for about one minute to facilitate tuning. Transmission of the ice bulletin will then follow immediately at 15 words per minute. Prescribed radio silent periods will be observed.



FROM RADIO STATION *NIK* pictured above the Coast Guard broadcasts information regarding weather, sea conditions, and ice that may be threatening North Atlantic shipping lanes.

When deemed advisable, special ice bulletins may be broadcast in addition to those regularly scheduled. Such special ice bulletins will be preceded by the international safety signal TTT.

Duplex operation will be used between NIK and merchant ships for general radio communications, such as requests for special information, reports made by merchant ships of ice sighted, sea temperatures, visibility and weather conditions. Merchant ships may call NIK on 500 kcs or their assigned calling frequency in the band 8354–8374 kcs and work on 425, 448, 454, 468 or 480 kcs or their assigned 8 mc working frequency. NIK will work on 444 or 8650 kcs. The surface patrol vessel, radio call sign NIDK, when on station will relay between NIK and ships when necessary. There is no charge for these services.

Throughout the ice season, U. S. Navy Radio Washington (NSS) will broadcast ice reports twice daily as furnished by Commander, International Ice Patrol at 0430 and 1630 GMT. U. S. Coast Guard radio stations at Boston (NMF), New York (NMY) and Norfolk (NMN) will broadcast a summary provided by the Hydrographic Office.

WARNING

Ships equipped with radar are cautioned that under certain conditions small bergs and growlers of a size sufficient to damage a vessel may not be detected due to being obscured by the sea swell or scope clutter.

EDITOR'S NOTE:

Additional information on the history and formation of the Patrol with brief discussions on ice, icebergs, and ocean currents is contained in the pamphlet International Ice Patrol (CG–171) available without charge from the Commandant (CHS) U. S. Coast Guard, Washington 25, D. C.

CAPTAIN FAILS TO RING BELL WITH JUDGE

Failure to comply with Article 15 (d) of the Inland Rules and violation of Item 1305 of Los Angeles City Ordinance 97629—making it unlawful to operate a vessel in a reckless or negligent or in any manner so as to endanger any other vessel or the life, limb or property of any person—resulted in a tugboat captain being assessed a $100 fine.

The San Pedro *News Pilot* reported the incident as follows:

"There are times that a guy should ring a bell.

"The skipper of a seagoing tug failed to do so and he was fined $100 by San Pedro Municipal Court Judge Howard E. Crandall.

"The Captain's troubles originally started when he arrived at San Pedro harbor on a sunny afternoon.

"He had arrived from Coos Bay dragging 2 barges, each of 1,100 tons displacement, with 47-foot beam and 200 feet long.

"This made a considerable seagoing tug and trailer.

"The skipper parked his floating van just south of the Pilot Station and came ashore.

"Later the fog closed in and harbor department officials felt that the tug and barges constituted a hazard to navigation because there was no operating fog bell aboard to warn other craft.

"He protested to the judge that it had been a sunny day when he parked the craft.

"The judge replied, however, 'would you park your car on a freeway just because it didn't look like fog?'

"And the judge had the last word; $100."

455100—58——2

UNITED STATES COAST GUARD

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

MVI
2 January 1958

Commandant's Action

on

Marine Board of Investigation; swamping and capsizing of the outboard motorboat ANAHILDA, with loss of life, off Guanica, Puerto Rico, on 30 June 1957

Pursuant to the provisions of Title 46, CFR Part 136, the record of the Marine Board of Investigation convened to investigate subject casualty, together with its Findings of Fact, Conclusions and Recommendations has been reviewed.

On the afternoon of Sunday, 30 June 1957, a party of five adults and four children hired the open, wooden outboard motorboat ANAHILDA for an excursion of several miles across open water off the south coast of Puerto Rico—from Cana Gorda Beach to Guanica Harbor, and return. The vessel, length 16' 6", beam 53", depth 20" was not equipped with any lifesaving devices. The owner/operator who was also on board, was not licensed to operate motorboats carrying passengers for hire. He knew that the boat was overloaded. The passage to Guanica Harbor was made without incident but on the return trip they met easterly winds of about 30 m. p. h. and waves estimated at 3 feet in height. Spray over the bow filled the boat to a depth of 9 or 10 inches and the passengers began bailing with a toy bucket. When about 800 yards off Guanica Light a sea broke over the vessel which swamped and capsized. Approximately 15 minutes later a man and his young son happened upon the scene in their small outboard motorboat and, after great effort, they succeeded in rescuing the operator, one adult and two children passengers and recovered the bodies of five other passengers who had drowned. The body of the missing person was found the following day.

The Findings of Fact, Conclusions and Recommendations of the Marine Board of Investigation convened to investigate subject casualty are approved.

In addition to the violations of law which resulted from the failure to have an approved lifesaving device for every person on board and the carrying of passengers for hire in a motorboat which was not under command of a licensed motorboat operator, there appears to have been negligence involving criminal liability. Attempting a passage over unprotected waters, under the conditions of wind and sea then existing, knowing that the boat was overloaded, and with knowledge that his passengers would be helpless for want of lifesaving devices in event of accident, was negligence of the character prohibited under penalty of fine and/or imprisonment (46 U. S. C. 526m). This matter will therefore be referred to the United States Attorney General for prosecution.

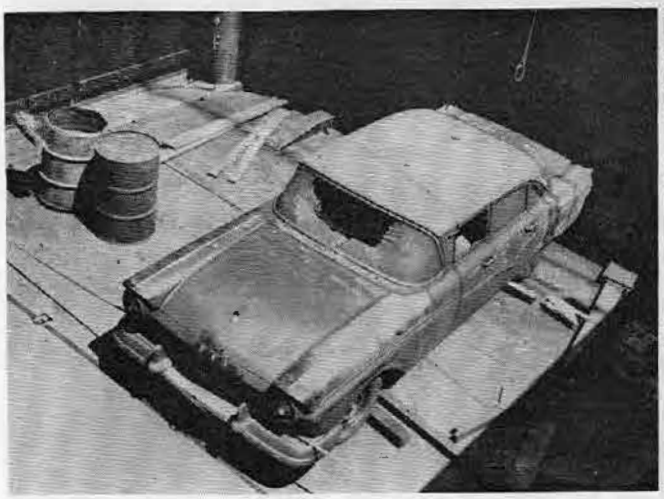
In accordance with the recommendation of the Marine Board of Investigation, a copy of the record in this case will be referred to the Coast Guard Board of Medals and Awards for formal consideration of the lifesaving achievements of Mr. Delfin Rodriguez Favale and his son, Jose Delfin Rodriguez Couto.

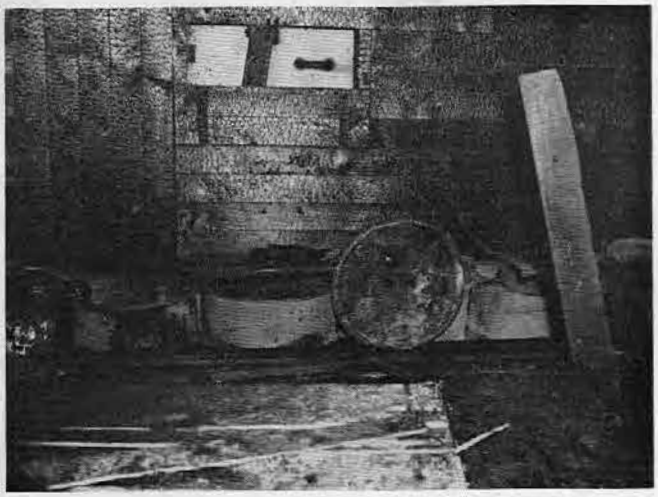
The services of Mr. Julio Padilla, Deputy Collector of Customs, Ponce, P. R., in assisting the Board in their investigation will be officially acknowledged.

The supervised expansion of the Coast Guard Auxiliary motorboat boarding and training program in the greater Antilles Section, as recommended by the Board, is highly desirable. The training and educational programs of the Auxiliary not only in this Section but throughout all United States waters are of constant growth and limited only by the availability of personnel and by budgetary restrictions. Auxiliary Public Instruction Courses in the Spanish language are presently under consideration for use in this particular area.

J. A. HIRSHFIELD
Rear Admiral, U. S. Coast Guard
Acting Commandant

NITROCELLULOSE FILM SCRAP IS THE CULPRIT HERE





Recently two American flag cargo vessels suffered severe structural damage and heavy cargo loss due to fire and explosions of nitrocellulose base motion picture film scrap.

In both cases improper identification and improper stowage may have contributed to the severity of these casualties.

Nitrocellulose base film is the type that was in general use prior to the advent of safety film which has a cellulose acetate base. As the older film is withdrawn from service, it is processed by eradicating the image and cut into small pieces for sale as scrap. This in turn is used in making lacquer, enamels, artificial leather, etc.

Classified as a flammable solid for purpose of regulation, nitrocellulose film must be packaged in specification steel drums, wooden barrels, and boxes with inside liners or fiberboard boxes and drums. Each outside container must bear the "Yellow label" and the proper shipping name, i.e., "motion picture film scrap (nitrocellulose base)." Film scrap which shows sign of deterioration must be shipped under water in metal barrels or drums.

Stowage is required to be "On deck protected" or "On deck under cover" away from all sources of heat. In any case the stowage must be protected from temperatures exceeding 100° F.

The stowage of dangerous cargoes is a real challenge to the ship's officers. They must find out what is going into the ship, how it is stowed, how protected. They should learn what extinguishing agents to use, and more important, what not to use if a fire breaks out.

Coast Guard and Interstate Commerce Commission regulations require shippers to mark dangerous shipments with colored labels as follows:

Red Label	For inflammable liquids, inflammable compressed gases, fireworks, explosive samples.
Yellow Label	For inflammable solids and oxidizing materials.
White Label	For acids, corrosive liquids.
Green Label	For non-inflammable gases.
Poison Label	For poisons.

But sometimes labels fall off, are destroyed, or overlooked. The basic responsibility for stowage of a ship rests squarely on the shoulders of the Master and his officers. The Coast Guard, the shippers, the dock force, the stevedores—all have their responsibilities for compliance with the law, but final responsibility for seaworthiness rests with the ship.

The law requires an accurate description of dangerous goods on the dangerous cargo manifest, unclouded by trade-name camouflage, but generally a manifest may not be seen by the ship's personnel until the vessel is at sea.

The attention of all concerned is directed to the photographs on this page which graphically illustrate how severe damage can be from improper identification and improper stowage. All are *U. S. Army Photographs.*

RULES FOR DANGEROUS CARGO IN NEW VOLUME

The Coast Guard's "Gray Book" of Dangerous Cargo Regulations has been discontinued.

CG–187, Explosives or Other Dangerous Articles on Board Vessels, is being replaced by a new volume of Title 46, Code of Federal Regulations. In the interest of economy and to avoid duplication of the same information in two Government publications, the Division of the Federal Register has agreed to publish semiannual cumulative pocket supplements of parts 146 and 147, Volume II of Title 46, Code of Federal Regulations.

This publication will contain all Dangerous Cargo Regulations which were in effect on January 1, 1958 and will be divided into parts and subparts exactly the same as CG–187. The supplements will be issued approximately 30 days subsequent to the time the semiannual amendments appear in the Federal Register, it was pointed out.

Copies of the new Volume II of Title 46, Code of Federal Regulations, containing parts 146 and 147, may be obtained as a sales publication from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Price $5.50.

BOAT OWNERS JOIN IN VOLUNTARY SAFETY PROGRAM

Concerned over the recent loss of two fishing sampans in the Honolulu area, a voluntary safety program has been proposed by the Commander of the 14th Coast Guard District.

"While the program does not have the force of law, it offers that extra margin of safety which, we believe, will incline all responsible operators to adopt it voluntarily," Rear Admiral Stephen H. Evans, District Commander, said.

The proposed recommendations follow:

1. Paint your boat International Orange.

2. Carry:

(a) Proper charts.

(b) Compass, calibrated.

(c) Hand bilge-pump and power bilge-pump.

(d) Wooden panels to cover exposed pilot-house windows in bad weather.

(e) Hatch covers that can be securely lashed down in bad weather.

(f) Two-way radio (2182 Kilocycles).

(g) Red rockets or red flares (Coast Guard approved types).

(h) Liferaft.

3. Inspect your boat and all safety equipment once a week. Keep in good repair.

4. Before leaving port, tell your family, friend, or agency where you are going and when you will return.

5. When at sea:

(a) Report to your buddy your position and condition at least *once a day*.

(b) Listen regularly to weather broadcasts.

6. When in danger or distress:

(a) Call for help on radio (2182 kcs) and report your position and condition. (*NOTE*: The Coast Guard listens on 2182 kcs continuously).

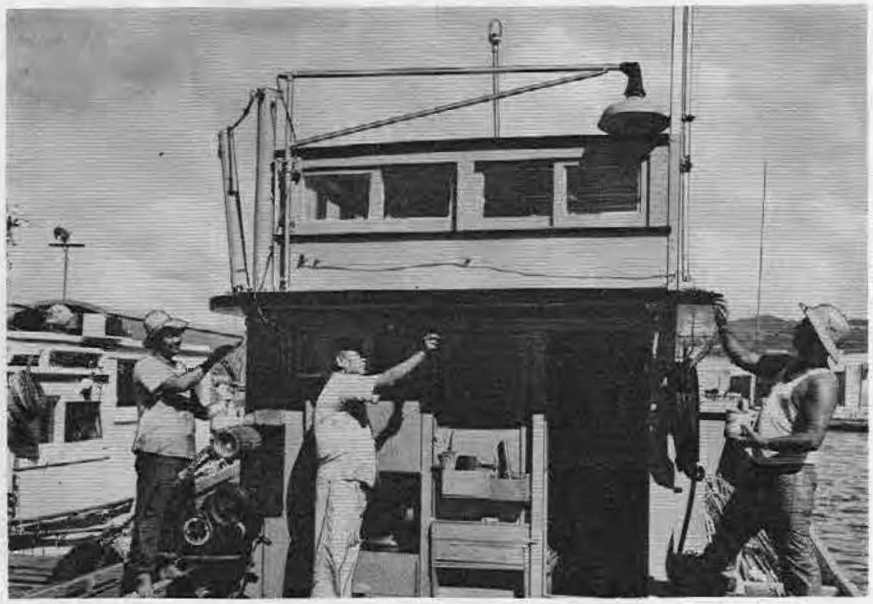
(b) When a ship or plane is sighted, signal by rockets, flares, or other visual signals of distress.

7. If forced to abandon ship:

(a) Wear lifejackets.

(b) Use liferaft, if you have one, otherwise lash crew together with lengths of line.

(c) Carry rockets, flares, or combination flares and orange smoke markers to signal passing ships or planes.



MAKING THEIR BOAT "SEE" WORTHY are these crew members of the sampan *Aukai* busily painting the topside and superstructure international orange as part of the Coast Guard's safety program in Hawaiian waters. Replacing the predominant blue of most small boats, the new paint job will make them easier to see in case of aerial or surface search.

LIGHTHOUSE ASSAULTED

The whole of Spain was shocked to hear of the armed assault on the lighthouse at Cape Bojador, Rio de Oro, and the disappearance of the two keepers and their families, it was reported in *Fairplay*, the British Weekly Shipping Journal.

The light was extinguished—a fact which attracted the attention of the neighboring Canary Islands—and when a Spanish Naval party landed they discovered that extensive damage had been done to the lighthouse installations.

"Signs of blood were the only trace of the European keepers and families, which gives an indication of the vindictiveness of the marauders", the article said. It is reported the light has been repaired by the authorities, but there is still no news of the occupants.

The Spanish press is full of appreciative comments on the lonely life of a lighthouse keeper who keeps a long vigilance to keep our sea routes safe only to be in need himself of protection.

REGULATIONS ISSUED FOR COMMISSIONING OF MERCHANT MARINERS

Latest regulations governing the appointment of licensed officers of the merchant marine as commissioned officers, chief warrant officers, and warrant officers in the Coast Guard have been published and are available to interested mariners.

This booklet, CG–231, contains the regulations and Coast Guard policy concerning written examinations, physical standards, license, service, and age requirements. It may be obtained from any Marine Inspection Office or from the Commandant (CHS), U. S. Coast Guard, Washington 25, D. C.

Persons who consider themselves eligible under this program may obtain the necessary applications from the Commandant (PTP), U. S. Coast Guard, Washington 25, D. C. Applications may be made at any time, but in order for an applicant to be examined during this calendar year the effective cut-off date for receipt of applications is April 1, 1958.

MARITIME SIDELIGHTS

The 27,700 ton Argentine battleship, *Moreno*, was towed from Puerto Belgrano, Argentina to Kikari, Japan, via the Panama Canal, a distance of 14,500 miles, by L. Smith and Co.'s tugs, *Clyde* and *Oceanna* in what is believed to be the longest deep sea tow carried out, it was reported in the winter edition of the Merchant Navy Journal.

* * *

A revised "Manual of General Procedures for Determining Operating-Differential Subsidy Rates" has been published by the Maritime Administration, U. S. Department of Commerce, it was announced by Clarence G. Morse, Maritime Administrator. The publication is available from the Sales and Distribution Office, U. S. Department of Commerce, Room 6327 Commerce Building, Washington 25, D. C., for $1 per copy.

* * *

In conjunction with New York University, the New York Shipping Association, Inc., started a 15-week marine accident prevention course on February 4. The revised course covers all phases of marine safety and lecturers represent commercial and government activities interested in furthering marine safety.

* * *

The Small Craft Division of the Socony Mobil Oil Company, Inc., has published a pamphlet "Sources for Charts" which is available free of charge to the boating public. In addition to charts, the publication lists the source and cost of light lists, tide and current tables, pilot rules, cruising guides, and other books of value to mariners. The address is: 150 East 42d Street, New York 17, N. Y.

* * *

Figures released by the Maritime Association of the Port of New York show that 25,844 deep-sea ships entered and left that port in 1957. In 1956 there were 25,433 vessels counted.

* * *

In San Francisco, the Marine Exchange listed 4,673 arrivals and 4,623 departures for that port during 1957, slightly above the 1956 totals. In addition, the Port of San Francisco broke a 6-year cargo record with 6,251,000 tons recorded during 1957, it was reported.

TWO MORE "LURLINES" joined the Matson fleet early this year. The 45-foot water taxi pictured above, and a sister boat named *Lurlines II* and *III*, were built for the South Seas-Orient cruise of the *Lurline* to transport passengers to and from the ship where there were no local facilities. Photo Courtesy *Matson Navigation Co.*

* * *

* * *

The 17,000-ton *Nitta Maru*, recently launched at the Kure Dockyard, is Japan's first ocean-going ore carrier, it was reported. The vessel is designed for trade from North and South American ports.

* * *

First contract for the 53 unit 14-year ship replacement program for Lykes Bros. Steamship Co. has been awarded to Ingalls Shipbuilding Corp., of Pascagoula, Miss. Contracts were signed for five 495-foot dry cargo ships at a cost of $48,180,135. Capable of lifting 11,402 tons of cargo, these new ships have a 69-foot beam, a 28-foot draft, and are rated at 17.4 knots.

* * *

On January 1, 1958 the United States tanker fleet totaled 328 vessels of 5,782,113 deadweight tons in contrast to 341 vessels of 5,848,491 deadweight tons at the beginning of 1957, according to the American Merchant Marine Institute. United States flag tankers in layup at the beginning of this year totaled 29, of which 27 of them were idle due to lack of business, the report said.

The Atomic Energy Commission and the Maritime Administration, U. S. Department of Commerce, have selected the General Dynamics Corporation to undertake the development of a prototype gas-cooled reactor, closed cycle gas turbine plant for merchant ship propulsion. The selection is contingent on negotiation of an acceptable contract.

* * *

A contract has been awarded to General Dynamics Corp., Electric Boat Division, Groton, Connecticut, for the preparation of a feasibility study of a submarine tanker, it was announced by Clarence G. Morse, Maritime Administrator, U. S. Department of Commerce.

Considerable interest has been expressed in this country and abroad concerning the economic and defense potentialities of submarine tankers. Such vessels would offer reduced resistance at high speeds in comparison with surface ships and could maintain scheduled speeds without regard to surface conditions.

General Dynamics Corp., Electric Boat Division, is a leading builder of submarines for the Navy Department. The study, for a fixed price of about $25,000, will be completed in 6 months.

40 YEARS AGO:

The Steamboat Inspection Service issued its "Tenth Supplement to General Rules and Regulations" containing all the amendments to regulations adopted by the Board of Supervising Inspectors at its meeting held early this year. The list also includes lifesaving appliances and boilers approved by the Board.

* * *

Accidents to vessels reported to the Bureau included the following: The freight steamer *Portland* was abandoned off the Coast of Central America following an engineroom fire and explosion. The amount of loss of steamer and cargo was estimated at $384,500.

The steamer *Alamance* while en route from Baltimore to Liverpool was torpedoed by a German submarine and sank about 6 miles off the Coast of Ireland and 6 men were drowned. While the *Admiral Evans* was entering Hawk Inlet, Alaska, it struck bottom, and as the vessel immediately began to fill it was beached. It is now totally submerged except the pilothouse at high water.

30 YEARS AGO:

This issue of the Monthly Bulletin included regulatory suggestions for the promotion of increased safety for dredging boats. It was recommended that dredges which are held stationary and engaged in operations on Inland Waters may at intervals of not more than 1 minute ring the bell rapidly for about 5 seconds followed by several short blasts of the steam whistle—not less than 4—the danger signal.

* * *

The steamer *Augusta* sank at her mooring in Brunswick, Ga., due to hanging on a piling in an exceptionally low tide. The vessel listed and filled with water settling with part of a load of logs.

While the ferry steamer *Peralta* was crossing San Francisco Bay she suddenly took a dip, the sea rushed over her deck and carried 30 persons overboard, most of whom were rescued.

* * *

20 YEARS AGO:

The Steamboat Inspection Service celebrated its 100th Anniversary during 1938 and the event was marked by a letter of congratulations from the President of the United States, Franklin D. Roosevelt, and a banquet at the Mayflower Hotel in Washington attended by Government and industry officials.

It was in 1838 that Congress aware of the many marine disasters passed the first steamboat inspection law which empowered the District Courts of the United States to appoint inspectors of hulls and boilers for the purpose of ascertaining the seaworthiness of the hulls and the proper construction of boilers and their operation.

* * *

15 YEARS AGO:

Constituting what will probably be the largest single civil engineering project of the Coast Guard during the present war the combined training stations known as Sheepshead Bay and Manhattan Beach in New York are now rapidly reaching completion.

* * *

A plan of national scope for the enlistment of civilian volunteers for the guarding of docks, terminals and other waterfront facilities of the United States is now being placed in operation by the Coast Guard.

* * *

The authority of the Coast Guard in enforcing war time regulations on inland waterways has been upheld in the Federal District Court at East St. Louis, Ill., which indicted and later convicted the operator of a 26-foot cruiser for three violations.

MERCHANT MARINE STATISTICS

There were 983 vessels of 1,000 gross tons and over in the active oceangoing United States merchant fleet on January 1, 1958, according to information released by the Maritime Administration, U. S. Department of Commerce. This was 17 less than the number active on December 1, 1957, and 116 less than the number on January 1, 1957.

There were 41 Government-owned and 942 privately owned ships in active service. These figures did not include privately owned vessels temporarily inactive, or Government-owned vessels employed in loading grain for storage. They also exclude 35 vessels in the custody of the Departments of Defense, State, and Interior.

There was an increase of 1 active and a decrease of 2 inactive vessels in the privately owned fleet. Of the total of 70 inactive vessels, 28 freighters and 27 tankers were laid up because of lack of business. Most of the others were undergoing repairs or conversion. Two freighters and 1 tanker were sold foreign, and 2 new tankers went into operation, making a net loss of 1 ship in the total privately owned fleet, which numbered 1,012 against 1,059 a year ago.

The Maritime Administration's active fleet decreased by 8, while its inactive fleet increased by 22. Eight Navy owned vessels were placed in fleet custody, while 4 tankers and 2 military combination ships owned by the Navy were turned over to the Maritime Administration. This made a net increase of 14 in the Government fleet, which totaled 2,113, 3 less than a year ago. There was a net increase of 13 vessels in the total merchant fleet, active and inactive, which numbered 3,125 on January 1, 1958, or 50 less than the 3,175 on January 1, 1957.

Contracts were placed for a nuclear ship, the NS *Savannah*, by the government and for a private tanker conversion. Two new tankers, and 1 new cargo ship, 1 tanker conversion and a cargo ship conversion were delivered, while 1 tanker order was suspended. The total of large merchant ships on order or under construction in United States shipyards was reduced to 115.

Seafaring jobs on active United States-flag ships of 1,000 gross tons or over, exclusive of civilian seamen manning Military Sea Transportation Service ships, was 53,537. Prospective officers in training in Federal and State nautical schools numbered 2,000.

nautical queries

Q. What is meant by the term "leaving losses" in reference to a low-pressure steam turbine?

A. In order for steam to pass through a turbine it must have a residual velocity when leaving the turbine. The kinetic energy of this residual steam velocity represents a loss, which is called leaving loss.

Q. Describe the method and frequency of cleaning the metal edge-type filter frequently used in turbine lubricating systems.

A. The filter cleaning handle should be given at least one complete revolution at least once each watch. At periodic intervals the filter should be dismantled and cleaned with kerosene and care taken not to damage the fine metal plates or edges.

Q. A vessel whose date is 10 October, while in West Longitude, crosses the International Date Line on a west bound course at 0800 Zone Time.

(a) What change does she make in her local date?

(b) What is the date and time at Greenwich when she crosses the line?

A. (a) The date is changed to 11 October.

(b) The date and time at Greenwich is 10 October, 2000.

Q. Why is the visible diameter of the sun greater in the winter than in the summer?

A. The sun is closer to the earth in the winter than in the summer. This is caused by the elliptical orbit of the earth about the sun, with the sun at one of the focal points.

Q. If a star has a south declination of 40°, what is the northernmost latitude at which the star may be seen at lower transit, neglecting small corrections such as that for refraction, height, etc.?

A. 50° South.

Q. (a) Under what conditions may the value of the "dip" or "height of eye" correction differ substantially from the normal values?

(b) What measures may be taken to minimize error in celestial observations when conditions are likely to cause the "height of eye" correction to be other than normal?

A. (a) The conditions that cause abnormal "dip" or "height of eye" correction are normally associated with a marked difference between the temperature of the air and the sea water and with a period of calm or nearly calm weather in which the air can become arranged in strata of different density.

(b) Under conditions which are likely to cause abnormal "dip," the error may be minimized by taking observations from the most elevated position available, and by taking a number of observations.

Q. (a) δ (delta) Orionis, the northernmost star in Orion's Belt, has a declination of approximately 0°. If this star was visible at rising and setting, what would be a close approximation to its true azimuth?

(b) Would its approximate azimuth at rising or setting differ for an observer in North Latitude from that of an observer in South Latitude?

A. (a) East and West respectively at rising or setting.

(b) No.

Q. Why is a parallax correction unnecessary for the stars?

A. A star is at such a great distance from the earth that there is no measurable difference between its direction from an observer on the earth's surface and the center of the earth. (DUTTONS * * * 10TH EDITION).

Q. (a) If the true altitude of a celestial body is 88°–02′, what is the radius of the circle of equal altitude upon which the observer is situated?

(b) If the body has a declination of 22°–27′, South and a GHA of 210°–37′ where would you place the center of the circle of equal altitudes on the chart?

A. (a) 1°–58′ or 118 miles.

(b) The center of the circle of equal altitudes would be placed at Latitude 22°–27′ South, and Longitude 149°–23′ East.

Q. Distinguish between the terms "heat" and "temperature" as they are used in the study of weather.

A. Heat is a form of energy, while temperature is the condition which determines the flow of heat from one substance to another, as measured on some arbitrarily chosen numerical scale.

Q. What is meant by the term "saturation" as applied to the atmosphere?

A. "Saturation" is the condition which exists when the relative humidity is 100 percent. It is "the condition in which the pressure exerted by water vapor is equal to the maximum vapor pressure possible at the prevailing temperature."

Q. Define: (a) "Supercooled water droplets."

(b) "Rime"

A. (a) Supercooled water droplets are "liquid water droplets whose temperature is below freezing."

(b) Rime consists of white layers of ice crystals deposited chiefly on vertical surfaces, such as rigging, generally in supercooled fog.

Q. What is the Coriolis Force?

A. The Coriolis Force is the name usually applied to the deflecting influence of the earth's rotation on winds. Because a stream of air or any moving body is deflected to the right in the Northern Hemisphere, to the left in the Southern, it is natural to think of this influence as a real force impelling the body in either direction. It is only an apparent force however.

BLOCKS AND TACKLES

Q. In the sketch below the seamen are testing a rope to assure its safe working load. Each seaman exerts a force of 100 pounds. Is the stress on the line greater in Case (A) or Case (B)? Explain your answer stating the total stress on the line in each case.

(A)

(B)

A. The stress is greater in Case (B). The total stress in Case (A) is 200 pounds, in Case (B) it is 300 pounds. The reason is that for every action there must be equal and opposite reaction.

MERCHANT MARINE PERSONNEL STATISTICS

MERCHANT MARINE OFFICER LICENSES ISSUED

QUARTER ENDING 31 DECEMBER 1957

DECK

Grade	Original	Renewal
Master:		
Ocean	54	407
Coastwise	5	29
Great Lakes	1	11
B. S. & L	21	94
Rivers	6	47
Radio officer licenses issued	29	34
Chief Mate:		
Ocean	40	84
Coastwise	1	1
Mate:		
Great Lakes		
B. S. & L		1
Rivers		
Second mate:		
Ocean	51	81
Coastwise		2
Third mate:		
Ocean	29	84
Coastwise	1	
Pilots:		
Great Lakes	3	12
B. S. & L	121	19
Rivers	89	30
Master: Uninspected vessels	4	10
Mate: Uninspected vessels	21	49
Motorboat operators	524	583
Total	1,000	1,578
Grand total	2,578	

ENGINEER

Grade	Original	Renewal
STEAM		
Chief engineer:		
Unlimited	45	443
Limited	13	98
First assistant engineer:		
Unlimited	42	137
Limited	1	11
Second assistant engineer:		
Unlimited	42	190
Limited		1
Third assistant engineer:		
Unlimited	45	189
Limited		
MOTOR		
Chief engineer:		
Unlimited	8	104
Limited	29	139
MOTOR—continued		
First assistant engineer:		
Unlimited	14	20
Limited	7	4
Second assistant engineer:		
Unlimited	5	17
Limited	1	2
Third assistant engineer:		
Unlimited	16	207
Limited		3
Chief engineer: Uninspected vessels	4	6
Assistant engineer: Uninspected vessels	3	3
Total	275	1,574
Grand total	1,849	

WAIVER OF MANNING REQUIREMENTS

Waivers	Atlantic Coast	Gulf Coast	Pacific Coast	Great Lakes	Total
Deck officers substituted for higher ratings				2	2
Engineer officers substituted for higher ratings	3	3			6
O. S. for A. B	1	1	1		3
Wiper or coalpassers for QMED	3		1	1	5
Total waivers	7	4	2	3	16
Number of vessels	6	4	2	2	14

INVESTIGATING UNITS

Coast Guard Merchant Marine Investigating Units and Merchant Marine Details investigated a total of 4,071 cases during the fourth quarter of 1957. From this number, hearings before Examiners resulted involving 98 officers and 351 unlicensed men. In the case of officers, no licenses were revoked, 4 were suspended without probation, 19 were suspended with probation granted, 9 cases were dismissed after hearing, and 5 hearings were closed with admonition. Of the unlicensed personnel, 26 documents were revoked, 20 were suspended without probation, 140 were suspended with probation granted, 32 hearings were closed with admonition, and 21 cases were dismissed after hearing. Eight licenses and 80 documents were voluntarily surrendered.

ORIGINAL SEAMEN'S DOCUMENTS ISSUED

Type of document	Atlantic Coast	Gulf Coast	Pacific Coast	Great Lakes and rivers	Total
Staff Officer	47	5	42	1	95
Continuous Discharge Book	1	47	1	1	50
Merchant Mariner's Documents	1,708	673	1,082	762	4,225
AB any waters unlimited	126	45	91	43	305
AB any waters, 12 months	57	16	42	68	183
AB Great Lakes, 18 months	2		1	20	23
AB tugs and towboats, any waters	2	1	3		6
AB bays and sounds			1		1
AB seagoing barges		3	1		4
Lifeboatman	290	54	123	63	530
QMED	178	65	71	137	451
Radio operators	7	1	8	3	19
Certificate of service	1,636	698	1,069	712	4,115
Tankerman	28	46	18	58	150
Total	4,082	1,654	2,553	1,868	10,157

APPENDIX

AMENDMENTS TO REGULATIONS

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

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

Subchapter N—Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels

[CGFR 58–1]

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

MISCELLANEOUS AMENDMENTS

The purpose of the amendments in this document is to correct and to clarify certain dangerous cargo requirements with respect to "charcoal" and "charcoal, activated" contained in Coast Guard Documents CGFR 57–33, Federal Register Document 57–8889, which was published in the FEDERAL REGISTER dated October 29, 1957 (22 F. R. 8559–8723), and CGFR 57–49, Federal Register Document 57–10352, which was published in the FEDERAL REGISTER dated December 14, 1957 (22 F. R. 10059–10063). In the miscellaneous amendments published October 29, 1957, the requirements for "charcoal" were inadvertently revised to permit "charcoal" shipped in accordance with these regulations to be exempt from specification packaging, marking other than name of contents, and labeling requirements. In the miscellaneous amendments published December 14, 1957, the requirements for "charcoal activated, carbon activated" were deleted when they should have been revised by deleting only the requirements regarding "carbon activated." The amendments in this document reinstate the requirements for "charcoal, activated."

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Treasury Department Orders 120, dated July 31, 1950 (15 F. R. 6521), 167–14, dated November 26, 1954 (19 F. R. 8026), and CGFR 56–28, dated July 24, 1956 (21 F. R. 5859), to promulgate regulations in

accordance with the statutes cited with the regulations below, the following corrections and amendments are prescribed:

1. Under "Subpart—Detailed Regulations Governing Inflammable Solids and Oxidizing Materials" § 146.22–100 (22 F. R. 8629) is corrected by deleting the second undesignated paragraph under "charcoal" in column 1, *Descriptive name of article.*

2. Under "Subpart—List of Explosives or Other Dangerous Articles Containing the Shipping Name or Description or Articles Subject to the Regulations, in This Subchapter," § 146.04–5 (22 F. R. 10059) is corrected by inserting "* Charcoal, Activated" in column 1; "Inf. S," in column 2; and "Yellow" in column 3.

3. Under "Subpart—Detailed Regulations Governing Inflammable Solids and Oxidizing Materials," § 146.22–100 (22 F. R. 10061) is corrected by revising paragraph d so that only the requirements pertaining to "carbon activated" are deleted. The requirements for "charcoal, activated" are reinstated and read as follows:

i. In column 1, *Descriptive name of article,* insert:

Charcoal, activated.

ii. In column 2, *Characteristic properties, cautions, marking required,* insert:

A more or less pure powdered, or granulated form of charcoal, characterized by high absorptive capacity.

Outside containers shall be marked "Charcoal, activated."

iii. In column 3, *Label required,* insert:

No label required.

iv. In column 4, *Required conditions for transportation—Cargo vessel,* insert:

Stowage:
"On deck protected."
"On deck under cover."
"Tween decks readily accessible."
"Under deck away from heat."
Outside containers:
Tight wooden barrels or kegs, tight wooden boxes, fiberboard boxes, not more than 4 bu. cap.
Wooden barrels or kegs, WIC, wooden boxes, WIC, not over 200 lb. gr. wt.
Fiberboard boxes WIC, not over 65 lb. gr. wt.
Siftproof paper bags or paperlined burlap (jute) bags, not more than 2½ bu. cap.

v. In column 5, *Required conditions for transportation—Passenger vessel,* insert:

Not permitted.

vi. In column 6, *Required conditions for transportation—Ferry vessel, passenger or vehicle,* insert:

Ferry stowage (AA).
Outside containers:
Tight wooden barrels or kegs, tight wooden boxes, fiberboard boxes, not more than 4 bu. cap.
Wooden barrels or kegs, WIC, wooden boxes WIC, not over 200 lb. gr. wt.
Fiberboard boxes WIC, not over 65 lb. gr. wt.
Siftproof paper bags or paperlined burlap (jute) bags, not more than 2½ bu. cap.

vii. In column 7, *Required conditions for transportation—R. R. car ferry, passenger or vehicle,* insert:

Ferry stowage (BB).
Outside containers:
Tight wooden barrels or kegs, tight wooden boxes, fiberboard boxes, not more than 4 bu. cap.
Wooden barrels or kegs, WIC, wooden boxes WIC, not over 200 lb. gr. wt.
Fiberboard boxes WIC, not over 65 lb. gr. wt.
Siftproof paper bags or paperlined burlap (jute) bags, not more than 2½ bu. cap.

(R. S. 4405, as amended, 4462, as amended, 4472, as amended; 46 U. S. C. 375, 416, 170. Interpret or apply sec. 3, 68 Stat. 675, 50 U. S. C. 198; E. O. 10402, 17 F. R. 9917, 3 CFR, 1952 Supp.)

Dated: January 18, 1958.

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

[F. R. Doc. 58–554; Filed, Jan. 23, 1958; 8:48 a. m.]

TITLE 33—NAVIGATION AND NAVIGABLE WATERS

Chapter I—Coast Guard, Department of the Treasury

[CGFR 57–50]

PART 1—GENERAL PROVISIONS

SUBPART 1.25—FEES AND CHARGES FOR COPYING, CERTIFYING, OR SEARCHING RECORDS AND FOR DUPLICATE DOCUMENTS AND CERTIFICATES

DUPLICATE MERCHANT MARINE DOCUMENTS OR CERTIFICATES

By virtue of the authority described with the regulations below, the following amendments in this document are prescribed and shall become effective upon the date of publication of this document in the FEDERAL REGISTER:

1. Section 1.25–55 is amended by revising paragraph (b) and adding paragraph (c), which read as follows:

§ 1.25–55 *Excerpts from certain merchant marine records.* * * *

(b) For each transcript of service of a merchant seaman prepared in letter form for some one other than the merchant seaman whose service is described therein, the fee shall be $0.25 for each entry with a minimum fee of $3.00.

(c) For a transcript of service of a merchant seaman which is furnished to the seaman on Form CG–723, the fee is $0.35 for the first entry and $0.10 for each additional entry requested at the same time.

(Sec. 501, 65 Stat. 290, 5 U. S. C. 140)

2. Section 1.25–65 is amended to read as follows:

§ 1.25–65 *Duplicate merchant marine documents or certificates.* The fees to obtain certain duplicate merchant marine documents or certificates are as follows:

(a) *Certificate of registry as staff officer (Form CG–887).* The fee for a duplicate certificate of registry as staff officer is $1.50. (See 46 CFR 10.25–7 (1).)

(b) *Continuous discharge book (Form CG–719A).* The fee for a duplicate continuous discharge book is $1.50. (See 46 CR 12.02–23.)

(c) *Merchant mariner's document (Form CG–2838).* The fee for a duplicate merchant mariner's document is $1.50. (See 46 CFR 12.02–23.)

(d) *Certificate of discharge to merchant seaman (Form CG–718A).* The fee for a duplicate certificate of discharge is $0.35. (See 46 CFR 12.02–23 (b).)

(e) *Certificate of seaman's service (Form CG–723).* In lieu of issuing an individual duplicate certificate of discharge (Form CG–718A) to a merchant seaman, the Coast Guard is authorized by 46 CFR 154.07 to issue such seaman a chronological record of his previous employment. The fee for furnishing information on Form CG–723 to the merchant seaman described therein is $0.35 for the first entry and $0.10 for each additional entry requested at the same time. (See 46 CFR 12.02–23 (b).)

(Sec. 7, 53 Stat. 1147, as amended, sec. 7, 49 Stat. 1936, as amended, sec. 501, 65 Stat. 290, 46 U. S. C. 247, 689, 5 U. S. C. 140)

Dated: December 16, 1957.

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

Approved: January 2, 1958.

A. GILMORE FLUES,
Acting Secretary of the Treasury.

[F. R. Doc. 58–208; Filed, Jan. 9, 1958; 8:47 a. m.]

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 2–58 JANUARY 15, 1958

Subj: "Miscellaneous Electrical Equipment List", CG–293.

1. *Purpose.* The purpose of this circular is to explain the limitations in the use of the subject publication.

2. *Background.*

a. The subject listing was developed fundamentally to save time in approving plans for vessels being constructed in accordance with the U. S. Coast Guard "Electrical Engineering Regulations", CG–259. Frequently used items found to comply with the applicable requirements of CG–259 were listed, thereby saving time of repeated plan approval.

b. As this listing has grown, apparently it has been construed by some as the only miscellaneous electrical equipment permitted for use on merchant vessels inspected by the Coast Guard. Some shipyards in their requests for quotations have inferred, if not required, that only items listed in CG–190 or CG–293 will be considered. This has led to increasing numbers of applications for listing of unsuitable items such as equipment that will not be frequently employed, has never been used on board a vessel, or is otherwise not suitable for listing in CG–293.

c. Due to the present increased work load the Coast Guard has been forced to curtail action on listings in CG–293 until the equipment has been demonstrated as suitable for listing.

3. *Limitations.*

a. As indicated in the letter of promulgation, page iii, of CG–293, the listing does not include all items of electrical equipment but is limited to wiring devices, lighting fixtures, appliances for heating and ventilating, and interior communications and signaling equipment.

b. Items for motorboats and for other vessels employing low voltage systems are not listed.

c. Before listing in CG–293, the Coast Guard will determine that the electrical equipment will be repeatedly used aboard inspected vessels.

4. *Industry Action.* From the above it is seen that listing in CG–293 is not a prerequisite of approval for electrical equipment on inspected merchant vessels. Other items will be approved on an individual installation basis.

5. *Coast Guard Action.* The Coast Guard will not require listing in CG–293 prior to installation in new construction or as a repair or alteration item. Officers in Charge, Marine Inspection may approve repairs and alterations under 46 CFR 111.05–5 (e). Electrical items, not listed in CG–293, may be approved for new construction of large vessels as indicated in 46 CFR 111.05–5 (b) and for motorboats as indicated in 46 CFR 183.01.

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

By direction of the Commandant.

NUMBERED AND UNDOCUMENTED VESSELS

The table below gives the cumulative total of undocumented vessels numbered under the provisions of the act of June 7, 1918, as amended (46 U. S. C. 288), in each Coast Guard district by customs ports for the quarter ended 31 December 1957. Generally speaking, undocumented vessels are those machinery-propelled vessels of less than 5 net tons engaged in trade which by reason of tonnage are exempt from documentation. They also include all other vessels propelled in whole or in part by machinery which have not been issued marine documents by the customs, owned in the United States and found on the navigable waters thereof.

Coast Guard District	Customs Port	Total
1 (Boston)	(4) Boston	17,517
	(1) Portland, Maine	9,832
	(2) St. Albans	953
	(5) Providence	5,198
	Total	**33,500**
2 (St. Louis)	(45) St. Louis	12,222
	(12) Pittsburgh	2,494
	(34) Pembina	203
	(35) Minneapolis	3,077
	(40) Indianapolis	6,546
	(42) Louisville	2,986
	(43) Memphis (part)	6,466
	(46) Omaha	442
	(47) Denver	40
	Total	**34,476**
3 (New York)	(10) New York	53,853
	(6) Bridgeport	10,580
	(11) Philadelphia	22,713
	Total	**87,146**
5 (Norfolk)	(14) Norfolk	17,528
	(13) Baltimore	24,652
	(15) Wilmington, N. C	9,004
	Total	**51,184**
7 (Miami)	(18) Tampa (part)	29,203
	(16) Charleston	1,711
	(17) Savannah	2,673
	(49) San Juan	513
	(51) St. Thomas	132
	Total	**34,292**
8 (New Orleans)	(20) New Orleans	22,499
	(18) Tampa (part)	560
	(19) Mobile	8,804
	(21) Port Arthur	4,773
	(22) Galveston	10,494
	(23) Laredo	1,816
	(24) El Paso	27
	(43) Memphis (part)	65
	Total	**49,038**
9 (Cleveland)	(41) Cleveland	11,701
	(7) Ogdensburg	2,832
	(8) Rochester	6,490
	(9) Buffalo	4,437
	(36) Duluth	2,720
	(37) Milwaukee	4,365
	(38) Detroit	24,281
	(39) Chicago	9,955
	Total	**66,790**
11 (Long Beach)	(27) Los Angeles	15,487
	(25) San Diego	2,743
	(26) Nogales	177
	Total	**18,407**
12 (San Francisco)	(28) San Francisco	**17,084**
13 (Seattle)	(30) Seattle	22,815
	(29) Portland, Oregon	8,695
	(33) Great Falls	757
	Total	**32,267**
14 (Honolulu)	(32) Honolulu	**3,886**
17 (Juneau)	(31) Juneau	**8,340**
	Grand Total	**436,410**

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 January 22, 1958 (CGFR 57–54). Copies of these documents may be obtained from the Superintendent of Documents, Washington 25, D. C.]

ARTICLES OF SHIPS' STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from 1 January to 31 January 1958, 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

Farrell Chemical Company, 705 Second Ave., Seattle 4, Wash., Certificate No. 193, dated 13 January 1958, DEGREASER NO. 99.

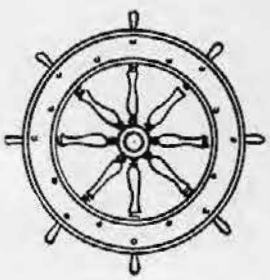
Farrell Chemical Company, 705 Second Ave., Seattle 4, Wash., Certificate No. 194, dated 13 January 1958, FUEL OIL DESLUDGER NO. 21.

Farrell Chemical Company, 705 Second Ave., Seattle 4, Wash., Certificate No. 200, dated 13 January 1958, SEA WASH NO. 711.

FUSIBLE PLUGS

The regulations prescribed in Subpart 162.014, Subchapter Q, Specifications, require that manufacturers submit samples from each heat of fusible plugs for test prior to plugs manufactured from the heat being used on vessels subject to inspection by the Coast Guard. A list of approved heats which have been tested and found acceptable during the period from 15 December 1957 to 15 January 1958 is as follows:

The Lunkenheimer Company, Cincinnati 14, Ohio, Heat Nos. 571, 572, 573, 574, 575, 576, 577 and 578.



MARINE SAFETY PUBLICATIONS AND PAMPHLETS

The following publications and pamphlets are available and may be obtained upon request from the nearest Marine Inspection Office of the United States Coast Guard, except for cost publications which may be obtained upon application to the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Date of each publication is indicated following title.

CG No.	*Title of Publication*
101	Specimen Examinations for Merchant Marine Deck Officers. 1–50
108	Rules and Regulations for Military Explosives. 5–15–54
115	Marine Engineering Regulations and Material Specifications. 3–1–56
123	Rules and Regulations for Tank Vessels. 10–1–56
129	Proceedings of the Merchant Marine Council. Monthly
	Motorboat Safety. 1957.
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. 1–2–57
172	Pilot Rules for the Great Lakes and Their Connecting and Tributary Waters. 7–1–57
174	A Manual for the Safe Handling of Inflammable and Combustible Liquids. 7–2–51
175	Manual for Lifeboatmen and Able Seamen, Qualified Members of Engine Department, and Tankerman. 3–5–54
176	Load Line Regulations. 11–1–53
182	Specimen Examinations for Merchant Marine Engineer Licenses. 5–1–57
184	Pilot Rules for the Western Rivers. 7–1–57
190	Equipment Lists. 3–1–56
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel. 9–15–55
200	Marine Investigation Regulations and Suspension and Revocation Proceedings. 4–13–53
220	Specimen Examination Questions for Licenses as Master, Mate, and Pilot of Central Western Rivers Vessels. 4–1–57
227	Laws Governing Marine Inspection. 7–3–50
239	Security of Vessels and Waterfront Facilities. 6–16–52
249	Merchant Marine Council Public Hearing Agenda. Annually
256	Rules and Regulations for Passenger Vessels. 3–1–57
257	Rules and Regulations for Cargo and Miscellaneous Vessels. 6–1–55
258	Rules and Regulations for Uninspected Vessels. 7–1–55
259	Electrical Engineering Regulations. 6–1–55
266	Rules and Regulations for Bulk Grain Cargo. 2–13–53
267	Rules and Regulations for Numbering Undocumented Vessels. 1–15–53
268	Rules and Regulations for Manning of Vessels. 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	Motorboats. 7–1–57
293	Miscellaneous Electrical Equipment List. 2–1–57
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf. 1–2–57

Official changes in rules and regulations are published in the Federal Register, which is printed daily except Sunday, Monday and days following holidays. The Federal Register is a sales publication and may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. It is furnished by mail to subscribers for $1.50 per month or $15.00 per year, payable in advance. Individual copies desired may be purchased as long as they are available. The charge for individual copies of the Federal Register varies in proportion to the size of the issue and will be 15 cents unless otherwise noted on the table of changes below.

Changes Published During January 1958

The following have been modified by Federal Registers:

CG–190 Federal Register January 22, 1958.

U. S. GOVERNMENT PRINTING OFFICE: 1958


ALWAYS DUMP REFUSE ON THE LEEWARD SIDE OR BACK AFT.
WHICH WAY IS THE WIND BLOWING?
PRACTICE GOOD HOUSEKEEPING HELP MAINTAIN THE DECKS IN A CLEAN AND SAFE CONDITION.