PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

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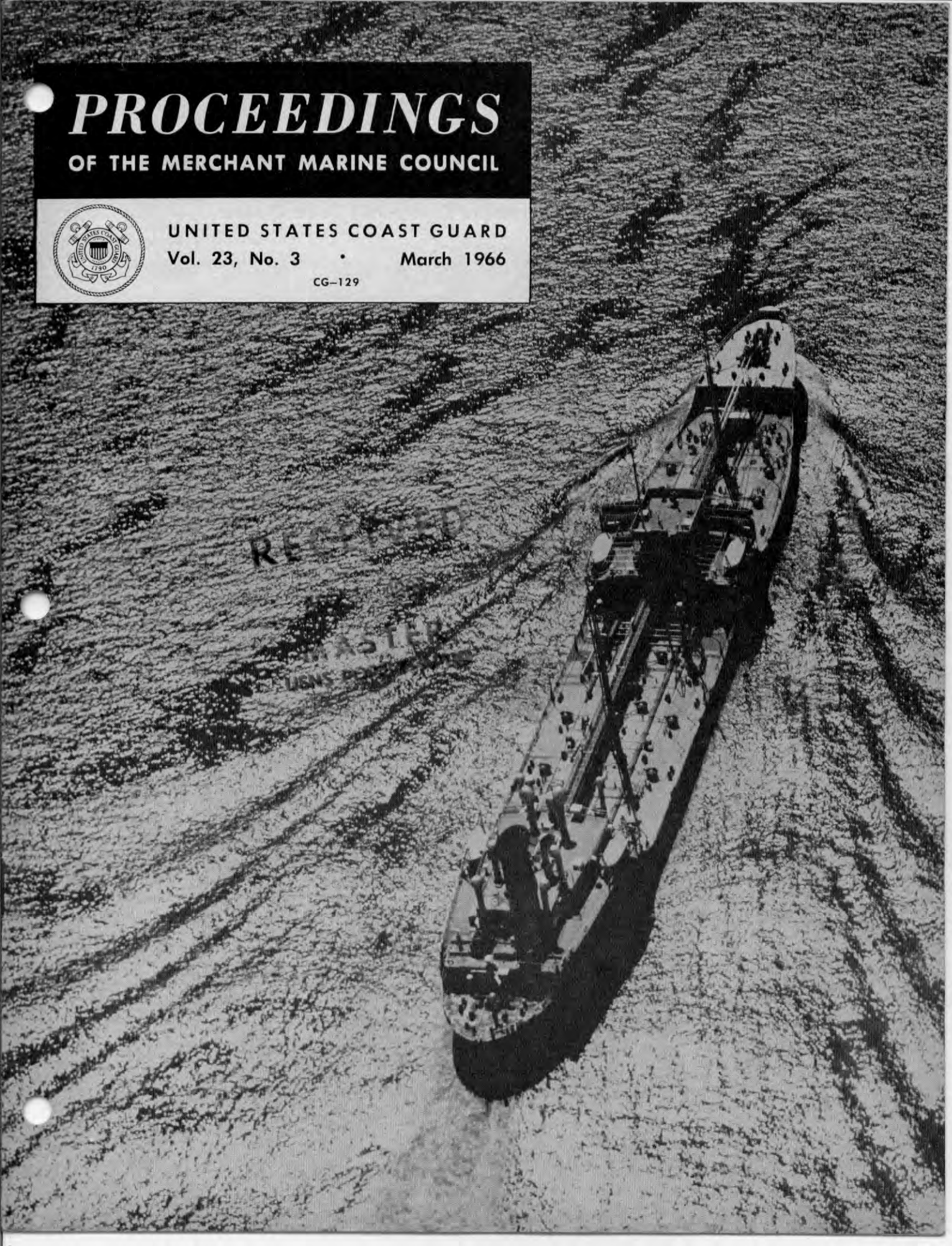

Norwegian Government Commends Coast Guard

Norwegian Ambassador to the United States, Hane Engen, right, presents a Letter of Appreciation on behalf of Mr. Kaire Willoch, Norwegian Minister of Commerce and Shipping to Admiral Edwin J. Roland, Commandant of the U.S. Coast Guard for assistance rendered by the Coast Guard following the Thanksgiving Day 1964 collision between the Israeli luxury liner Shalom *and the Norwegian motor vessel* Stolt Dagali. *Looking on is Mr. Knut Staubo, President of the Norwegian Shipowners Association and owner of the* Stolt Dagali.

The award was made at a Norwegian Embassy Luncheon in Washington and cited the Coast Guard for its heroism in saving the lives of 24 of the Stolt Dagali's *43 crewmen "under extreme and perilous conditions."*

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OF THE

MERCHANT MARINE COUNCIL

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Lieutenant A. J. Arnett, USCG, *Editor*

T. A. DeNardo, *Assistant Editor*

IN THIS ISSUE . . .

The information explosion has hit the Coast Guard. The Chief of the Port Security Division tells how a petrochemical data information center is being developed to meet the problems inherent in the water carriage of exotic cargoes beginning page 48.

A unique onboard training program for tanker personnel is reported beginning page 52.

Texacomarine's first aid training program is explained on page 56.

A report to the nation on Coast Guard activities in 1965 is to be found on page 60.

With rudder and power gone, the 455-foot freighter South African Victory, *listing 30 degrees, lies dead in the water, battered by 40-foot seas and 50-knot winds. A Coast Guard plane (from which this photo was shot) circles overhead as a helicopter and the cutters* Acushnet, Bibb, *and* Cactus *rush to the scene.*

Later the freighter regained power and rudder and was able to limp into port with her three-cutter escort. None of the crew of 48 or her 5 passengers were injured.

THIS COPY FOR NOT LESS THAN 20 READERS—PLEASE PASS IT ALONG

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Port Safety: Taking a New Look

THE CHALLENGE of accident prevention in our ports is the greatest at any time in our peacetime history. During the past two decades the production and transportation of industrial chemicals on our waterways have increased manyfold. Our ports are visited by increased numbers of special vessels of novel design, both foreign and domestic, carrying cargoes which during transport must be highly refrigerated, heated or pressurized such as liquid propane, molten sulphur, butane, anhydrous ammonia and many others.

Radioactive spent fuel elements from reactors abroad are being returned to the United States for reworking. These highly radioactive sources, together with the transport of other radioactive materials, have now become commonplace.

In addition to the hazards normally associated with certain dangerous cargoes, the problem of water pollution by some materials, as well as by oil and refuse, has similarly increased. Local, State, and Federal authorities are becoming more and more concerned over this problem and public pressure is demanding removal of safety hazards and control of pollution.

How did the Coast Guard acquire its present role in port safety? In World War I the United States Coast Guard was made responsible for enforcing certain regulations issued under the Espionage Act of 1917 concerning the anchorages and the safety of shipping. At the end of that war port security ceased to be a Federal function. In 1940 the President again invoked the Espionage Act and the Coast Guard reinstituted its port security program. In February of 1942 the President extended this program to include waterfront facilities and areas. With the ending of World War II port security operations were terminated. In October 1950 with the beginning of the Korean conflict the President once more initiated a program of port security. When the truce treaty was signed, the port security program should have followed the pattern established at the close of other wars and ceased to be a Federal function. However, [illegible]. The program continues [illegible]. It exists because the necessity [illegible] engendered it continues [illegible]. The port security program [illegible] our overall national security [illegible]. It is directed by Presidential executive order, supervised [illegible] Secretary of the Treasury, and [illegible] by the Coast Guard.

We have established a program of port safety which consists of four parts: regulatory [illegible], inspection of hazards, enforcement, review of casualties.

The regulations [illegible] now and issued by the Coast Guard [illegible] first studied and published [illegible] by industrial representatives [illegible] engi-

Coast Guard Casualty Information Centers would help to alleviate the destruction of such casualties as this one.

Capt. William A. Jenkins, USCG

neers, and interested shipping and transportation personnel. They provide national standards for safety and public protection. These standards govern the stowage and handling of dangerous cargo on vessels and waterfront facilities, the packaging and labeling of articles, the separation of incompatible commodities, and the handling and stowage of commercial and military explosives to name a few.

In our concept of government and private enterprise, port safety depends primarily on the efforts of owners and operators of the ports and vessels.

In some port areas the owners and operators have formed associations and mutual aid organizations on the basic premise that, where all unite to assist one, each best protects his own. But, more on this later.

This concept of self-policing to obtain port safety is subscribed to by the Commandant. It is found in the legislative history of the Dangerous Cargo Act as the intent of the sponsors of this legislation. Also the final paragraph of Executive Order 10173, which sets up the Coast Guard Port Security program, states this very clearly over the signature of the President, and I quote: "*Primary responsibility.* Nothing contained in this part shall be construed as relieving the masters, owners, operators, and agents of vessels or waterfront facilities from their primary responsibility for the protection and security of such vessels or waterfront facilities."

The enforcement phase is a major responsibility of the Coast Guard. Approximately 1,400 officers and men are specifically assigned to the function of port security. The senior operational Coast Guard officer in each of the larger ports is designated the Captain of the Port and made responsible for enforcing the port security and dangerous cargo regulations. His enforcement authority extends to all privately owned or operated piers and vessels on the Federal waters within his area and on them he may make inspections, conduct searches, control the access of things and persons, and supervise and control operations involving dangerous cargo.

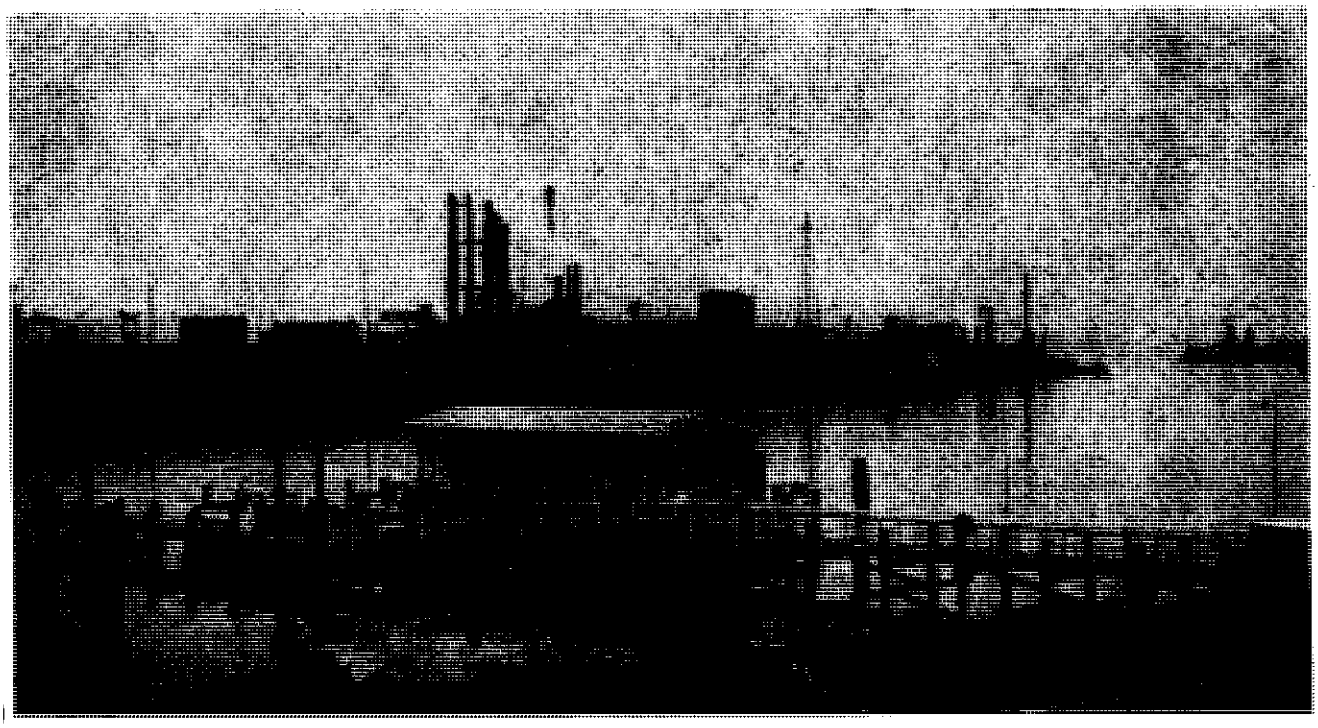
In general the Coast Guard secures compliance by fostering a program of public understanding and support, by issuing advisory warnings to operators of facilities as necessary, and by encouraging enforcement of local ordinances by local authorities.

In the meantime the Captains of the Port are fully occupied in hazard correction. Harbor patrols on the water and inspection details on shore daily check the port area for hazardous conditions. Stowage of cargo whether of dangerous cargo or not are considered by the inspecting personnel from all aspects of safety.

They evaluate procedures, stowages, compatibility of cargoes, housekeeping, safe practices or lack of safe practices. They identify the nature of the hazard. Is it incendiary, toxic, radioactive, corrosive? Is it combustible, flammable, deflagrating or detonating? They estimate the probability and the imminence of an accident; the capability of available forces to control the accident.

If from the reports of his inspecting details a Captain of the Port judges that a vessel, or a pier, or part of the harbor area is in danger, he may take immediate steps to lessen the danger.

The Houston Captain of the Port headquarters is located central to the Houston industrial complex. This view is from the headquarters with Coast Guard boat dock in foreground and industrial plants beyond.

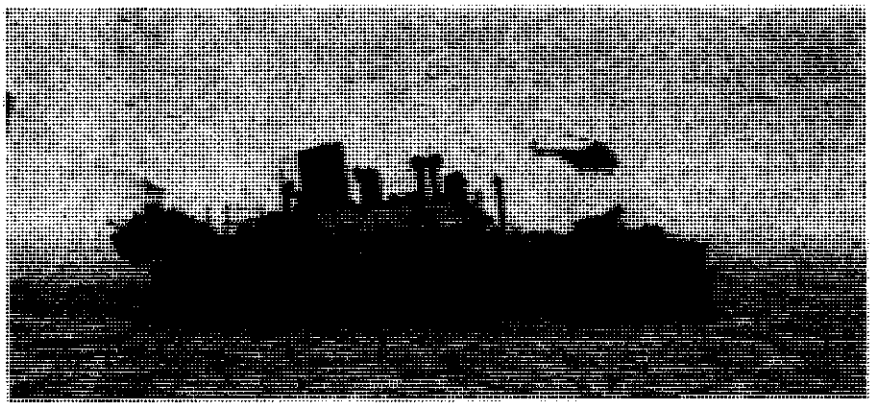


If the fire protective equipment on a pier is not sufficient to provide a reasonable degree of safety to a vessel moored alongside, the Captain of the Port may require the vessel to shift to an anchorage or to another pier. If the stowage of a substance in a hold is incompatible with other commodities, he may order that substance removed from the vessel. If the bulk packaging operations in a nearby handling shed endanger the transfer of flammable cargo at the terminal, he may suspend the general permit for handling dangerous cargo until safeguards have been established. If urgent necessity requires acetylene burning on a pier during the shipment of sensitive explosives, he may require that the entire scene be put under his immediate supervision and control. If any hazard severely threatens the safety of a vessel, terminal, or area of the port he may establish a protective zone under guard with access limited to his control, may require the safe withdrawal of all vessels, equipment and personnel, and may enlist the aid and cooperation of all Federal, State, and local authorities.

The last phase of the port safety program is the review of casualties. Marine accidents in port are thoroughly investigated by personnel from the Coast Guard Marine Inspection Office for the main purpose of obtaining serviceable information for preventing similar casualties. Fires and other accidents on waterfront facilities are the subject of inquiry by the Captains of the Port. Investigations and reports made public by local authorities and insurance associations are reviewed.

The Coast Guard also administers a special program for preventing sabotage which complements the safety program by attempting to eliminate those occurrences which are not accidental.

But let's now turn to a major immediate task in this complicated port safety mission—the handling and transportation of dangerous cargoes. The question arises as to the future strategy to combat the ever-increasing disaster potential due to the increasing volume and types of hazardous materials now being shipped via water transportation. The problem has been made real by actual accidents, some of which could have produced a major disaster or holocaust.



Stern section of the tanker San Jacinto *after splitting in half following explosion.*

Perhaps someday we will see pertinent data of the transportation of hazardous cargoes maintained accurately on a computer similar to the flight plan data used by aircraft. Then a spill or casualty at any location along the route could be referred to the data center and an immediate "read-out" obtained which would identify the product, the hazards of toxicity, reactivity and flammability, give first aid precautions, firefighting and fire control procedure and locations of the nearest control equipment and expertise. Such a sophisticated system is in the future. What is being done now?

A need exists for not only an understanding by industry of its responsibilities, but for the same understanding by local, State and Federal authorities. And in the process of carrying out these responsibilities, immediate consideration should be given to a plan of mutual aid.

Such a plan has recently been established in the Port of Houston. Let me briefly explain the workings of the Channel Industries Mutual Aid Plan, with emphasis upon the U.S. Coast Guard Casualty Information Center operated by the U.S. Coast Guard, Captain of the Port, Houston.

Houston is a port area abounding with several dozen chemical plants and ships hundreds of chemicals by water. Of 150 known chemical products manufactured along the channel at least 8 are explosive within certain ranges of mixture with air; 2 are unstable and explosive; 1 ignites and explodes when exposed to air; and some may detonate under heat or shock. Explosive, toxic and corrosive hazards exist. Safety must be the byword!

As a measure toward exercising more control over emergencies in this congested area, the Captain of the Port, Houston set up a system for rapid retrieval of information to identify hazards, to suggest methods of control, and to disseminate this information to Coast Guard personnel and other interested groups. A card file is maintained for each chemical which is shipped through the Port of Houston. This program is coordinated with the Channel Industries Mutual Aid (CIMA) which at present represents only 23 of the 36 chemical manufacturing plants along the channel.

The Captain of the Port will be capable of:

Maintaining an up-to-date check of all chemical movements on vessels and terminals.

Immediate access to pertinent and vital information on each chemical.

Contacting promptly those industrial safety directors and casualty control personnel in the Houston area who are most expert on each specific chemical. Each chemical plant maintains personnel of the highest training and experience for each of its products. Their advice and assistance would be highly desirable, perhaps essential, to the safety and success of Coast Guard personnel and others called upon to combat a chemical accident.

The Captain of the Port maintains a Casualty Information Center in which he displays a large metal wall map of the Houston Ship Channel showing all waterfront and contiguous facilities, chemical storage areas, manufacturing plants, and chemical pipe lines crossing under the channel. Magnetic tabs are posted daily to indicate the location of dangerous chemicals on piers and vessels. Should a casualty occur, other magnetic tabs would indicate areas of spillage or fire, traffic control posts, direction of wind, and areas threatened by a movement of the spillage or fire.

When a casualty is reported an inspection of the wall map should reveal what chemicals are known to be in the

area. If the initial reports of fires or spillages fail to identify the chemical involved, the wall map will assist the Duty Officer in making a reasonable estimate.

Upon ascertaining what chemical is involved, the Duty Officer (OOD) will pull from a drawer of a special file cabinet a pair of kardex cards, one white and one pink, each titled with the name of the chemical. Similar pairs are filed alphabetically for each proper, trade or other name of the known chemical products of the port. The face of the White Card lists those physical properties of the chemical which are most relevant to port security; the classification according to Coast Guard regulations (for law enforcement) an estimate of its hazard to health, its capability of burning, its reactivity or stability. The reverse of the white card gives information important to Coast Guard personnel committed to controlling a fire or spill of the chemical. This information is expressed in entirely nontechnical terms.

The OOD will alert a Coast Guard Casualty Control Team to provide communications from the scene to the station and to assist the local civilian authorities in establishing control. However, before this team is dispatched from the station the OOD will first instruct them according to the complete information found on the reverse of the white card. This will insure that the team has the proper equipment and protective clothing, knows the health hazards of the operation, and the normal procedures for effecting control.

If a vessel or waterfront facility is involved, the OOD will dispatch a second team to investigate the locale of the casualty and to report what other chemicals are stowed there. Chemicals so reported by this team will be indicated by the tabs on the wall map. The OOD will draw a white card for each new chemical. By studying the face of these cards and the wall map he will be able to determine whether there is a likelihood of an explosion, fire detonation, gas or corrosive danger. This likelihood, if there is one, will be immediately reported to the chief civilian authority on the scene and to Civil Defense. The progress of the casualty toward the possibility of explosion will be closely watched. Adjacent plants will be alerted using appropriate phone lists.

Information contained on the white card will assist the OOD in preventing the approach of his team to a locale of danger for which they are not properly equipped, protected or instructed.

The format of the white card will probably be changed by experience. Its main purpose is to predigest essential information and to make it readily available in simple and practical language.

The pink card contains a list of names and phone numbers of the casualty control personnel in the industrial plants along the channel who are expert in handling fires and spills of this particular chemical. The OOD will call one or more of the experts listed on the card to alert and advise of the nature of the casualty involving this chemical and to request advice as to the safety of his team and the effectiveness of current and planned procedures.

General Phone Lists are prepared according to the different types of accidents expected, such as, fires of flammable liquids, fires of liquefied petroleum gas, spills or corrosive liquids, and spills of lethal poisons. These lists give the names and phone numbers of all organizations which have an interest in such casualties. Prompt use of these lists will insure that these agencies "get the word."

Firefighting Equipment Lists and Spillage Control Equipment Lists specify what equipment should be used for each type of casualty.

Fire-Control Procedure Lists give brief standard fire control instructions and cautions according to the type of chemical involved. The OOD will use these lists to insure that his teams are accurately briefed on proper procedures. For those cases where the Coast Guard team arrives on the scene before the local authorities, the OOD will have to rely heavily on these lists to insure that the efforts of his team are effective. It goes without saying that point-to-point communications are a must.

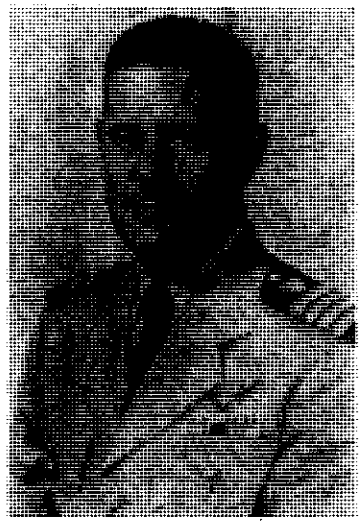
Such then is a brief description of the Casualty Information Center at Houston. It is important to repeat that it is merely an *aid* to the Captain of the Port. It is not intended that the Captain of the Port assume control of any civilian operation or relieve anyone of his responsibility. It serves two purposes only:

1. It alerts interested civilian resources of a casualty involving chemicals along the channel.

2. It enables the Coast Guard Duty Officer at the station to maintain control over the safety of his team on the scene and to insure effective assistance.

This brief description of the Captain of the Port's Casualty Information Center which has been set up primarily to protect his men when faced with the hazards of a chemical spillage or fire, also shows one example of joint Coast Guard-industry cooperation to meet the threat of challenge of the changing situation in our ports. Other areas may have different problems. I call upon each of you to examine your own safety requirements. The Coast Guard and its personnel in each and every port are ready, as always, to cooperate and assist to the limit of its authority, facilities and personnel in any local undertaking to enhance port safety. Please don't hesitate to share your suggestion with the Coast Guard. Any idea that will improve the safety of your port or the effectiveness of the Coast Guard's port safety program is welcome. ⚓

This article was originally a Coast Guard presentation to the Marine Section of the National Safety Council's annual congress in Chicago last fall.



Captain Jenkins is a 1941 graduate of the U.S. Coast Guard Academy. He earned his wings as a Coast Guard Aviator in 1944. His career has included duties as Aide to the Commandant, Assistant Commandant of Academy Cadets, and Commanding Officer of Coast Guard Air Detachment, San Juan. Captain Jenkins was graduated from the National War College just prior to assuming his present position as Chief Port Security and Law Enforcement Division at Coast Guard Headquarters, Washington, D.C.

Onboard training of tanker personnel

Capt. G. A. McLaughlin

What better place to train a ship's crew how to fight fires and save lives than on their own vessel. This is at the heart of most training programs, but a unique variation is utilized by some of the tanker fleets today. Capt. George A. McLaughlin of Codan Marine, New York, told the National Safety Council about it last fall, and we are happy to pass his comments along.

THERE ARE PROBABLY as many different kinds of training programs as there are different principles. Yet despite the differences in how, when, and where among programs the results desired are always the same. I would like to outline a training program now used by three major companies which makes it possible for tanker personnel to organize themselves into efficient firefighting units. These units have been able to control and extinguish fires aboard their vessels with the standard equipment routinely provided for that purpose. The training program has given the seaman confidence in the equipment and the skill needed to extinguish fires safely and quickly.

In 1946 the management of the Keystone Shipping Co., recognizing the fire danger of modern tankships, decided to embark on a major revision of firefighting practices aboard its tankers. Keystone began by eliminating all suicide nozzles, replacing them with all-purpose water fog nozzles and applicators. Air foam making devices, CO_2 hose reels, and extra CO_2 portables were also added. A detailed plan of the vessel showing equipment and fire station locations, along with maintenance and operations manuals, was provided for each ship. In addition to providing this equipment, Keystone sent all officer personnel to the U.S. Navy Firefighting Schools at Philadelphia, Pa., and Treasure Island, Calif. About 120 officers were trained at Navy schools over a 2-year period. During 1948 and 1949 Keystone decided to go one step further and commence Onboard Training at Sea, again under the direction of an independent consultant.

In 1956 Codan Marine, Inc., was formed to develop the Keystone safety program and do anticollision research aboard the Keystone fleet. Since that date Codan has also provided firefighting and safety programs, as well as instruction in anticollision radar navigation aboard ships of companies that cannot draw on their own large safety or fire departments.

The instructors either masters or chief engineers, must know shipboard routines and be able to blend the safety and firefighting programs into the vessel's daily operation. Since the expense of sending men to the U.S. Navy Firefighting Schools on a continuing basis quickly becomes prohibitive and since training programs ashore cannot duplicate the surroundings or situations that occur aboard ship, an onboard training program provides the most economical, most effective and broadest method of general fire and safety training. To date, approximately 5,000 seamen have been trained in this program.

In 1961 one or more of these programs was started and continued aboard vessels of the marine divisions of the AMOCO Shipping Co., the Hess Oil & Chemical Corp., and the Trinidad Corp. Special programs have been set up for each vessel of each company, with consideration given to that vessel's cargo and trade. Up-to-date information received from the National Safety Council, the U.S. Coast Guard, the U.S. Navy, the International Association of Fire Chiefs, American Society of Safety Engineers, and various equipment manufacturers has been carefully integrated and adapted by Codan to the needs of its clients.

Most marine casualties can be attributed to some form of human error which usually stems from lack of training or from failure of the ships' officers to define clearly and acquaint personnel with emergency stations, duties, or equipment. After all, ships' officers are not education majors. Every effort is made to give the men confidence in their equipment, with fire and accident prevention stressed at all times. The trainees are seamen who have had little or no formal or special education in safety, fire prevention, or firefighting. In the past the main interest of ship personnel was to get the cargo in or out in the shortest possible time, regardless of any and all safety regulations. Regulations and safety procedures were considered a waste of time. Technological evolution and many new dangers made it mandatory to convince crews that safe operation is a more efficient and economical way of getting things done. Today the men, through the training programs, know how to protect themselves not only in routine ships' duties but also in cases of emergency.

Each training program in firefighting and safety and in anticollision radar navigation is taught by an instructor specializing in that particular field. Each company has special requirements and equipment. Generally, in firefighting and safety programs, the onboard instructor works with the master by reviewing company and U.S. Coast Guard safety rules and regulations. The officers and crewmembers also participate in the Coast Guard review. Meetings with each department to discuss fire and accident prevention in general and in specific work areas are conducted. The men from deck, engine, and steward departments make suggestions at these meetings and frequently question the safety of certain working procedures. At these meetings, the operation of all firefighting, rescue, and safety devices is explained and illustrated. During the last 3 years training films have become part of these meetings. The U.S. Coast Guard films: "Firefighting Aboard

Tankers" and "Amver—Search and Rescue," as well as the API film "Chemistry of a Petroleum Fire" and the British film "Fire Below" have been shown to about 3,000 men and their officers. Since shipping personnel is in frequent turnover, trained men can spread some of their knowledge among other seamen.

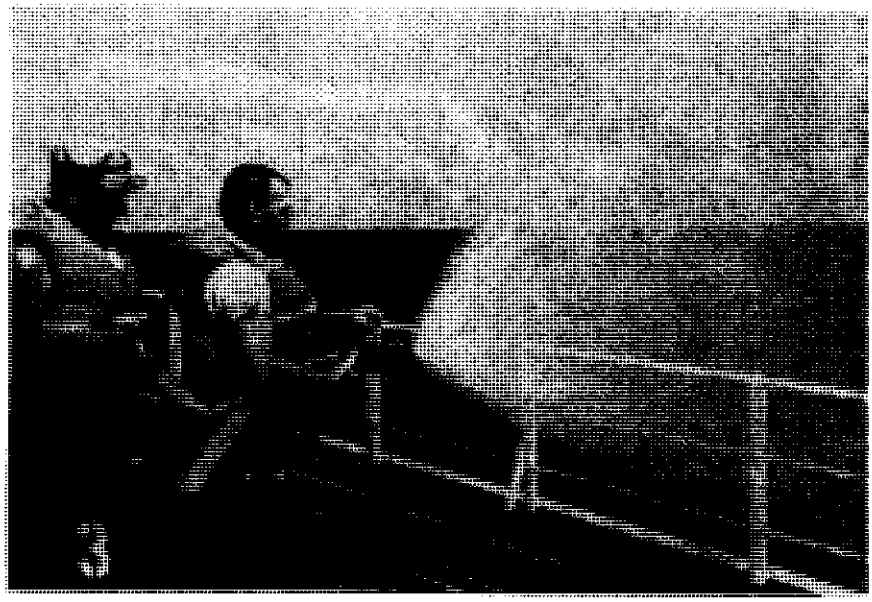
In any shipboard safety program the master of the vessel is the key figure. His cooperation must be year round, not just for the voyage when the instructor is aboard. Shipboard safety must continue 24 hours a day, 365 days a year. The master must be convinced that safety will aid him in the performance of his duties and further the efficient operation of the vessel. With the advent of more sophisticated products, chemicals, and faster turn arounds, the old cry of "We've been doing it this way for 30 years" is seldom heard. Larger, faster ships have created problems unheard of 20 years ago. Faster ships have reduced sea time, and larger cargo pumps, along with modern shore facilities, have decreased port time. It is still up to the master to see that the ship operates safely and efficiently. The master's spirit always pervades the ship and carries to every man aboard her. The master's spirit, as a rule, still continues the spirit that prevailed when the American Merchant Marine was the world's best. He should be given, therefore, the broadest authority to keep the ship safe and efficient.

To assist the master with the time-consuming safety program these major companies send the instructor aboard each ship of the fleet. As soon as possible after boarding the vessel, the instructor meets with the master to plan an itinerary of vessel inspections, safety equipment inspections, and personnel instructions and drills. The safety program is designed to meet that particular ship's trade and special needs. After the master has given his approval, a meeting is held with the department heads and the program is discussed with them. The program is drawn up so that there will be no interference with the vessel's operation, daily work, or normal routine. Training must fit into, and not upset, normal practices.

Here is the way the Codan program is working now. After the program has been set in motion, an inspection of the vessel is made. The cargo operation in progress is observed. All safety defects are noted. All firefighting and lifesaving equipment is checked. A report of any variation of set company standards is made to the master and department head concerned. All defects are corrected as soon as possible. At the present time, vessels of the Keystone fleet, are serviced with a check list of 35 items that include gangway, safety net, ullage hole flame screens, scupper plugs, bonding cables, pumprooms, pumproom bilge flooding alarms, rescue harnesses, explosion meters, paint lockers, passageways, ladders, engineroom, fireroom, and galley. If the vessel is on a ballast passage, the tank cleaning operations are observed and the tank cleaning equipment is checked. A similar check list is being developed for vessels of the AMOCO Shipping Co. fleet.

As soon as the inspections have been completed and the vessel has left port, the training and refresher sessions for the officers and crew begin. A series of lectures and training films are provided for each department. These sessions include all men off duty; attendance is on the trainees own time. Cooperation has been almost 100 percent since most men are willing to attend so that they may learn how to protect themselves and their shipmates. Every effort has been made to add variety to these meetings. Something new, either a film or some up-to-date information, is added to hold interest. Discussions are lengthy before, during, and after these meetings. Since these crews recognize management's interest in their safety, the companies gain enormously through employee teamwork. Men on duty during some sessions attend other meetings; everyone has opportunity to participate. During coffee breaks and after meal hours, informal discussions are held with both officers and men.

While men are on duty, the firefighting and safety devices in each work area are explained and demonstrated to the particular men concerned. On deck the men are taught how to properly test for gas before entering a tank, and how to fight various cargo fires, including fires in the housings and in the pumprooms. In the engineroom and fireroom the crew are taught how to fight electrical fires, oil spill fires, and soot fires with CO_2 portables, portable dry chemicals, hose reels, and water fog. Of course they are instructed not to use water on electrical fires. The members of the steward department are taught how to attack grease and grease duct fire, as well as any type of fire that might occur in quarters, messrooms, and passageways. All personnel are taught how to organize for and how to attack a major cargo fire using the ship's own equipment. All personnel are taught that panic can and will have a deadly effect on any firefighting operation. The entire program is designed to keep these men alert to ever present dangers and potential



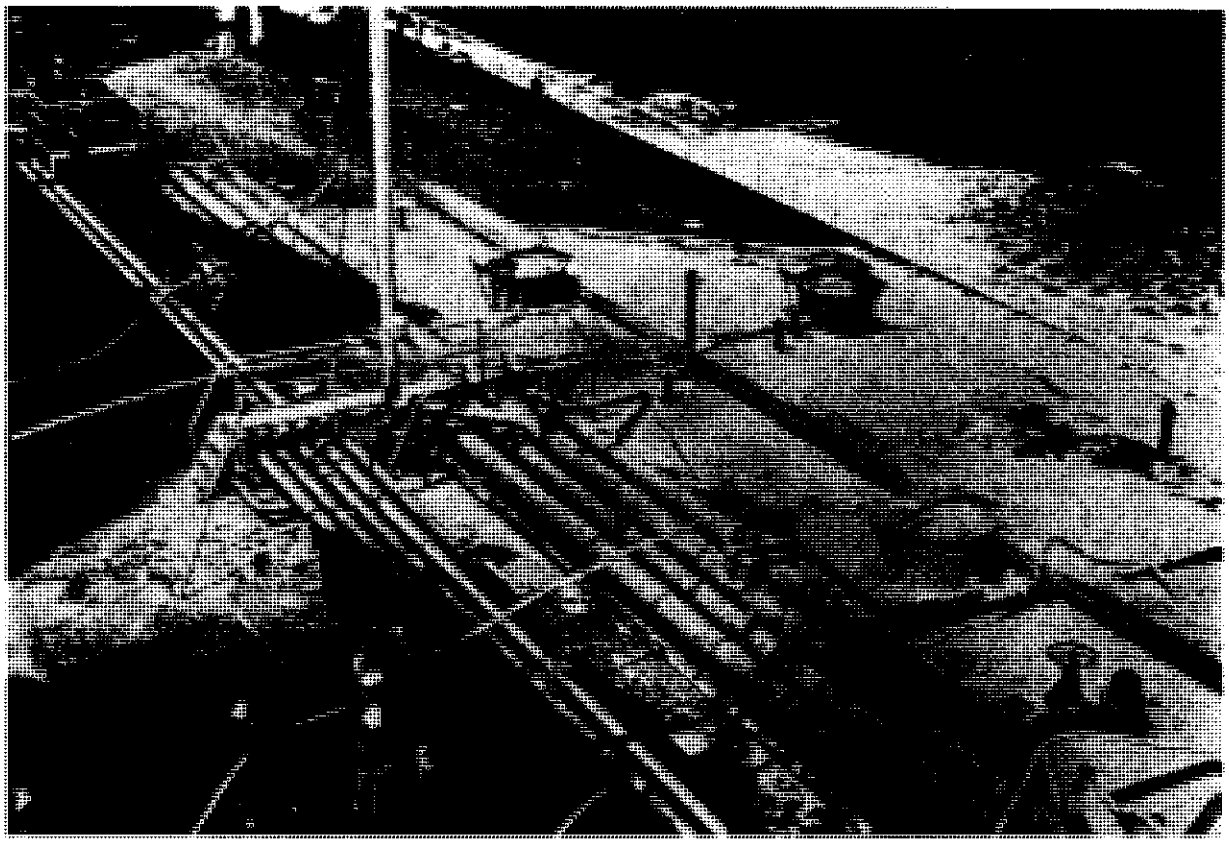
The all-purpose nozzle is exercised.

hazards in their work area, as well as aboard the vessel in general. When an emergency occurs it will affect every man aboard the vessel, no matter where he works or sleeps. One mistake by one man can bring death to all and destruction to the ship and cargo. Some men can walk by firefighting and safety devices day after day for years without ever seeing this equipment and without ever gaining an inkling of why it is there.

boat drill first. Confused by this break of routine, some men will go directly to the fire stations and then sheepishly go to the boat stations realizing their mistake. This embarrassment alerts them to signals at future drills. At the boat drill, after the boats are returned to their chocks, the emergency lifeboat transmitter is demonstrated. Finally the releasing mechanism for the new inflatable liferaft is demonstrated.

air suits, and other special equipment are demonstrated during this period.

After a demonstration of all firefighting devices, the officers aboard Keystone and AMOCO fleets organize teams to put these devices to practical use. Within the Hess fleet every vessel has its own built-in foam system and this system is operated for 1 minute during the drills using a foam monitor nozzle, a 2½ inch foam



Foam aplenty.

For years it has been a requirement of the U.S. Coast Guard for every U.S. flag vessel to have a weekly fire and boat drill. On many ships—too many in fact—these drills are hurry-up affairs conducted in the shortest possible time. These drills have become dull, deadly routine—"Ho hum! another fire and boat drill." No imagination is ever used. At the usual drill two hoses are led out and put under minimum pressure—that, unfortunately, is the usual official drill. At the boat drill the boats are swung out, the men mustered, and that is it—10 or 15 minutes of nothing!

To break the deadly monotony of these dull affairs, we may hold the

At the fire drill actual use of the fresh air breathing apparatus and the resuscitator is demonstrated during either a pumproom or tank rescue. A man is lifted to the deck with the pumproom rescue harness by a man wearing the fresh air breathing apparatus and revived with the resuscitator. The Keystone Shipping Co. and the Hess Oil & Chemical Corp. have resuscitators aboard every vessel. The resuscitator has not only proved invaluable for men who have been gassed, but has been used numerous times to revive men with heart attacks and other breathing difficulties when oxygen is required. Gas masks, oxygen breathing apparatus, compressed

portable nozzle and a backup team applying low velocity water fog. Men also use portable CO_2 and dry chemical extinguishers with other portable or CO_2 hose reel nozzles as backup for extinguishing simulated drip pan fires. Foam and backup teams attack a manifold or tank fire. These imaginary fires are extinguished promptly. Throughout the year most masters see that their men are drilled in one or more of these operations at the weekly drill.

To impress the men with the importance of preventive maintenance, the devices used at the drills are seldom tested beforehand. If there

is a failure, they are asked: "What would you do if this happened to be a real emergency instead of a drill?" Such a breakdown could result in loss of lives, cargo, and ship. Remember a ship is a world of its own with assistance hours away at best. Even in port assistance is slow.

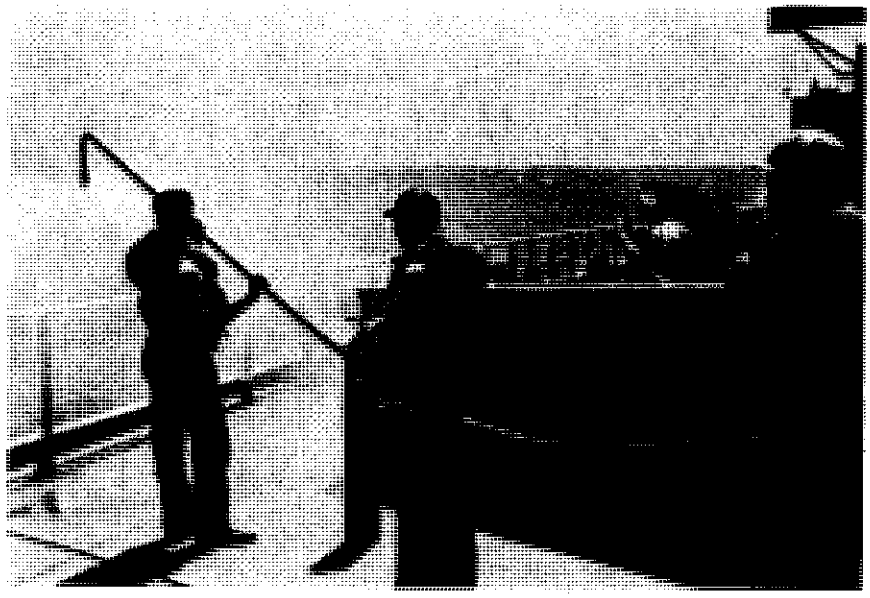
Firefighting, emergency and safety training takes time, and the advantage of onboard training program is the availability of time. Shipboard instructors have a captive audience which welcomes a change in the daily routine. Moreover trainees can be observed going about their duties and the instructors can offer safety suggestions right on the job. Shipboard accident prevention instruction is included in the safety program, a very important inclusion.

At times actual drills are filmed by the instructor and shown as part of new drill programs. When the men see themselves and their shipmates on the screen, the reactions are gratifying but quite expected. Just like people ashore, seeing themselves in home movies, the seamen enjoy looking at themselves. They point out mistakes they have made as well as the mistakes others have made. We all learn from our mistakes, our own or those of others. The one who can learn from the mistakes of others is truly wise. Films taken on four or five vessels of the fleet are put together so that all crews can see the training conducted on other ships as well as their own.

The third phase of Codan's onboard training programs is anticollision radar navigation using the Keystone Anti-Collision System. During the 20 years following World War II there has been a very substantial increase in size and speed of ships and corresponding increase in number of collisions. Three tanker companies—Hess, Keystone, and Trinidad—recognized this increasing hazard and financed Codan's organized anticollision radar research aboard each of their vessels annually for a total period of 10 years.

A professional instructor in radar navigation went from ship to ship, where he radar-navigated with the navigation officers using all techniques, observations, and suggestions. The information supplied by hundreds of experienced radar navigators and the instructors has produced and proved the Keystone Anti-Collision System, which is the first complete anticollision system.

The Keystone system is a rapid, routine plotting system as well as a rapid method for calculation of relative motion. It is capable of handling all radar navigation in dense traffic. This system is based on the new mathematical concept that the relative motion triangle is still a triangle even when it is so sharp angled that it resembles a stralght line, or so small that it resembles a point. This concept makes it possible to handle all collision situations by the same simple routine procedures. From a line (AD) the navigator can instantly read the relative motion in respect to other ships and landmarks which will result from any course and/or speed changes or maneuvers he intends to make, even without reference to conventional navigational definitions and numerical figures, simply by using the length and direction of line (AD). He can handle traffic with greater ease, safety, and efficiency than he could if he used any electronic plotting device or any costly computer now known.



Practice with the fog applicator.

The Keystone system can be used in many other ways. It can be used for precise bridge-to-bridge communication, for naval strategy, for three-dimensional navigation, etc., because it defines with the first eight letters of the alphabet (A–H) all relative motion needed in anticollision navigation and in associated terrestrial navigation. The Keystone system is ready to be adopted as a complete, uniform anticollision system by the world's merchant marine. It will eliminate the prevailing ignorance in radar navigation which causes widespread destruction and death. The human errors, caused by faulty or no training, account for 95 percent of all radar collisions. As the Keystone system is used in the future, many lives, ships, cargoes, and hundreds of millions of dollars, which may now be marked for destruction, will be saved. Just one collision alone, caused by flagrant ignorance in radar navigation, cost the assurers $60 million. This gives an idea of the immense values that can be preserved with efficiently operating safety and training programs.

To achieve maximum effect all training programs must be arranged so that there is a follow through by management. The employee must be convinced that management cares about him and his personal safety. This assurance can only be gained in the maritime industry by personal contact, education, and training. The entire crew of each ship, from the master on down the line, knows that the management of these four fleets—AMOCO, Hess, Keystone, and Trinidad—is behind them 100 percent. This knowledge results in safer operation, reducing accidents, fires, and collisions. Ships' personnel have been able to organize themselves to prevent, or if prevention has failed, to attack fires that have occurred aboard their ships with the ship's own equipment. Modern ships and their cargoes call for modern safety and firefighting equipment and up-to-date onboard training. ⚓

First Aid At Sea

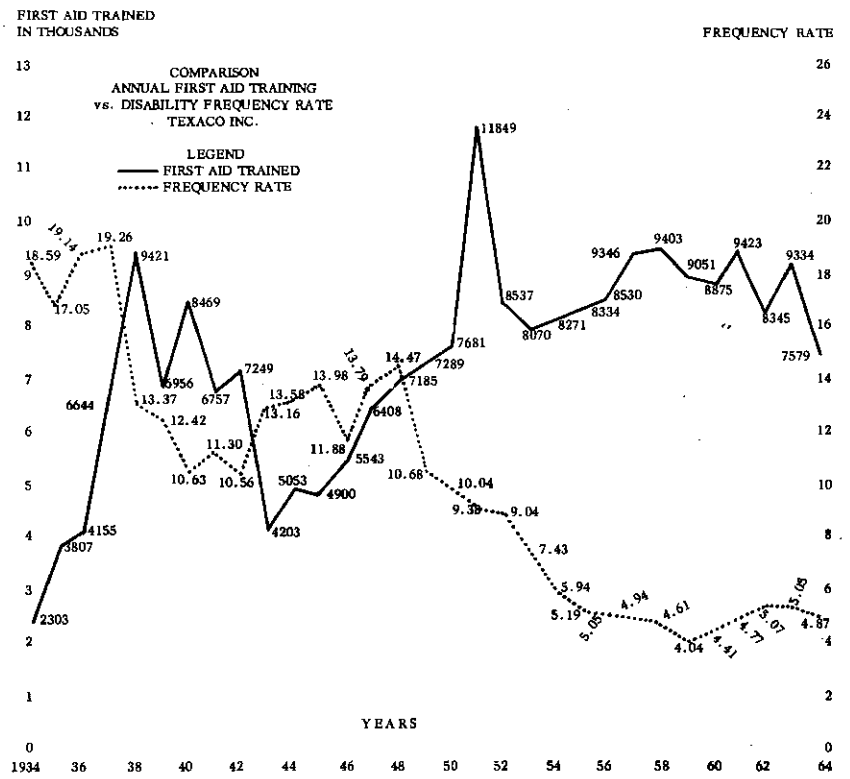
Texacomarine's Shipboard Safety Program Stresses First Aid Training for All Hands

THE INSTRUCTOR in front of a dozen or so officers and crew sitting in the recreation room points to a large illustrated flip chart on a table nearby. "If you can recognize the symptoms and can take the right steps in each of these six first aid emergency measures, you might be able to save a life, your own, a shipmate's or a family member's." A stir of interest among the listeners betrays the memory of a lamentably common dilemma: The inability to help when someone at home or in the car or on the ship has been hurt. These men are attending an off-watch training session to learn how to "bridge the gap" until medical assistance arrives after someone's been hurt.

In a few minutes they're gathered around a "victim" stretched out on deck on a blanket with his feet elevated about 18 inches discussing the treatment for physical shock. In answer to a question by one of the "students" regarding the giving of an alcoholic drink the instructor says, "That's the worst thing you can do. Alcohol is a depressant, not a stimulant. If he's conscious give him water or hot coffee or tea instead."

The scene is a familiar one aboard Texaco vessels where first aid training has been offered since 1952. In peak years as many as 450 officers and men have received certificates for completing the 8-hour course. On many ships 100 percent of the complement have turned out, every man jack aboard from captain to messman becoming a trained first aider. Repeats are common: Some men carry four or five certificates in their wallets. "This is good stuff," they frequently tell the instructors; letters of thanks to management ashore are not rare.

Taking first aid to sea was an extension of a Texaco program started shoreside as long ago as 1934. Statistical proof of the effectiveness of first aid training in reducing injury frequency among refinery and oil field employees made shipboard training a logical supplement to the marine safety program. The idea is that the seaman who knows how to handle an emergency first aid situation is more conscious of the conditions that cause these emergencies and in turn becomes a more safety conscious employee.



A GRAPHIC ILLUSTRATION of the importance of first aid training to a safety program. In order to widen the statistical reliability, figures reflecting Texaco's companywide, not just marine department, experience is shown. The frequency rate is determined by American Standards Association formula. Note that in years following increased first aid training the disability frequency rate decreases after a reasonable time lag. Conversely, when first aid training tapers off, the disability frequency rate rises.

As the good ship TEXACO *Rhode Island* and her sisters roll down the coast the sessions in the recreation room, or out on the fantail become a progressively instructive bull session. The portion of the course given each day is repeated morning, afternoon

and evening so that all aboard will have a chance to attend.

One day various methods of artificial respiration are demonstrated and practiced. The inhalator is exercised. The next day control of bleeding may be emphasized. Steps for handling arterial, venous and capillary bleeding are rehearsed.

The lesson on bandaging goes fast. Seamen are unusually handy in learning this technique. Their ability to improvise comes to the fore when care of dislocations and fractures is the problem. They quickly find that a folded magazine or a tool handle, properly used, makes an excellent splint. When the emergency is transportation of the injured, various carries for the steep ladders and narrow shipboard passageways are practiced.

After he completes the course, each man is given a 54-page illustrated booklet for study and reference. It's a replica of the flip chart he's been looking at on previous days.

The course outline and teaching materials used aboard Texaco vessels were developed by the American Petroleum Institute and can be obtained from them by writing to the API at 1271 Avenue of the Americas, New York 20, N.Y. The cost of an administrative guide, flip chart, certificates and booklets comes to about $1.25 per trainee. Anyone who has completed a recognized first aid course, for example, Red Cross, St. John's Ambulance Corps, or service-connected, will be qualified by the API as an instructor. This means that it should not be too difficult to find, or develop, instructors among shoreside personnel to conduct a first aid training program at sea. While he is aboard, he can carry out other activities such as safety inspections or firefighting training so that first aid training alone does not become expensive in terms of instructor's time. If a vessel is at anchor, or manned while in shipyard for several days, first aid instruction can be given then.

It would be ideal if every employee in the maritime industry, where injury frequency rates are relatively high, could receive adequate training in first aid. The starting point would be for individual vessel operators to institute such training. Tested and inexpensive materials are available for setting up a first aid program. Shipboard first aid training not only builds morale and develops a person-to-person interest on the part of management in the seamen's welfare, but it also has a demonstrated beneficial effect on the frequency of shipboard injuries. ⚓

nautical queries

DECK

Q. a. What is radar in very basic terms?

b. What is meant by the term "bearing resolution" when applied to radar? On what does bearing resolution depend?

c. What is resolution in range? On what does resolution in range depend?

A. a. Radar, derived from the first letters of radio detection and ranging, is a method of determining distance by measuring the time for a radio signal to travel from a transmitter to its target and return, and direction by noting the orientation of the antenna which transmits a narrow beam.

b. Resolution in bearing is the minimum difference in bearing between two objects at the same range that can be separated by a radar set. The ability to make this separation is dependent on beam width.

c. Resolution in range is the minimum difference in range between two objects on the same bearing that can be separated by a radar set. The ability to make this separation is dependent primarily on pulse length.

Q. A vessel is steaming on course 90° true at 10 knots. At 1600 a radio beacon bore 70°. At 1620 the same beacon bore 30°. Required: The distance from the light at time of second bearing and also the distance at which it should be passed abeam, holding same course.

A. Bearings 20° and 60°=factors 0.53 and 0.46; 20-minute run at 10 knots=3.33 miles run; 3.33 miles x 0.53=1.76 or 1.77 miles at 2d bearing; 3.33 miles x 0.46=1.53 miles abeam. Distance off at 2nd bearing=1.76 or 1.77 miles distance off abeam=1.53 miles.

Q. A wave guide is:

(a) A vacuum tube.

(b) A range scale.

(c) A hollow pipe, usually of rectangular or round cross section used to transmit radio frequency energy.

(d) An antenna.

(e) An oscilloscope on which recurrent pulses or wave forms may be observed.

A. (c) A hollow pipe, usually of rectangular or round cross section used to transmit radio frequency energy.

ENGINE

Q. If the steam plant of your vessel became damaged to such an extent that the plant had to be shut down and the vessel taken under tow what should be done to protect the main turbine?

A. The shaft should be secured to prevent turning. This may be done by tightening the shaft brake or if the turning gear with locking device is of sufficient strength it may be used. If the shaft cannot be prevented from turning the lubricating oil must be kept warm and oil pressure maintained on all bearings and gears.

Q. If a turbine casing is open and clear and you want to remove the rotor, how would you prevent damage to the rotor due to swaying and hitting something when being lifted?

A. Attach rotor lifting guides or knee brackets to the lower half of the casing to form a channel for the shaft to ride up in. Use a strongback or lifting beam with slings to the ends of the rotor to raise the rotor evenly. Great care must be exercised in lifting the rotor and sufficient men placed at both ends to insure raising the rotor evenly. Special supports must be built at the rotor journals if it is to be landed any place other than in the casing journal bearings.

Q. What is "axial clearance" and how does its importance differ in the impulse and reaction type turbines?

A. The clearance between blades and nozzle or between different stages of blades.—So as not to allow the high velocity steam jets to spread in the impulse, the blade wheel should be set comparatively close to the nozzle.—In the reaction type, the velocity is much lower and the jet fills the whole periphery. The axial clearances in this type may therefore be more liberal.

Q. What is the distinguishing difference between impulse blading and reaction blading?

A. In the impulse blading the cross-sectional area of the steam passages between the blades remains approximately the same. In the reaction blading the passages between adjacent blades must be in the form of correctly shaped nozzles in order that the steam may expand the correct amount without turbulence.

Cutter Escanaba sights liferaft with 2 survivors and one body. Moments later Coast Guard swimmers were in the raft making lines fast to the three preparatory to pulling them aboard the cutter.

Cargo shifts; freighter sinks

The captain went down with his ship and 31 other shipmates perished during and after the sinking of the Spanish freighter *Monte Palomares*. Two survivors were rescued by the Coast Guard cutter *Escanaba*.

Bound from Norfolk, Va., to Spain, and loaded with 11,000 tons of corn, the ship was 900 miles east northeast of Bermuda when it ran into a severe gale and 45-foot seas.

At 7 a.m. Monday, January 10, the cargo shifted, causing the ship to list steeply. The decks were awash, with water entering the exhaust vents. The enginerooms were flooded and the power lost, leaving the ship to be battered helplessly by the storm.

At 3 p.m. the captain sent an SOS. The Coast Guard in New York answered him, but advised him that it would be several hours before the nearest ship could reach him.

The captain waited another three hours, then at 6 p.m. gave the order to abandon ship. For most of the men, it was already too late. The starboard lifeboat could not be lowered due to the steep list. The port lifeboat had been seriously damaged by the smashing waves, but 18 men managed to get it into the water and get inside. They were washed away, never to be seen again.

Four men got off in one of the ship's two liferafts. Before the second raft could be launched, the ship sank, and as waves rushed over its decks, the raft floated free. Nine men clambered aboard it or clung to its sides. The captain and six other men went down with the ship. As water rushed into the still-hot boilers, there was an explosion and burst of flame.

The first raft, with four men on board, was the more fortunate of the two. Seven hours later, at 3 a.m., January 11, the American freighter *Steelmaker* found them and rescued all four men.

The second raft, with nine on board, tipped over, and before the men struggling in the water could get it righted, at least one of them was swept away. Again and again, at least 10 times, the raft turned over, until by Tuesday morning, January 11, only three men were left aboard it. The 3d assistant engineer age 50, died that morning.

The 33-year-old 1st assistant engineer and a 28-year-old cook never gave up hope. They knew the SOS had gone out and the U.S. Coast Guard was on the way. As the day wore on, the biting winds continued chilling the men, until they were unconscious at 4 p.m. when an Air Force plane from Lajes, Azores, found them.

With the plane guiding them, the Coast Guard cutter *Escanaba*, a 255-foot cutter from New Bedford, Mass., with a crew of 146, reached the raft at 5 p.m. The seas were still 35 feet—much too rough to lower a lifeboat. Two Minnesota men immediately volunteered to go over the side, swim to the raft, and tie lines to the unconscious men for hauling aboard. The volunteers were Howard Lifson, radarman third class, of Hopkins, Minnesota, and William Ribar, seaman boatswain's mate, of Minneapolis.

The commanding officer, Commander Robert Foley, of New Bedford, Mass., maneuvered the ship as close as possible and the swimmers did their work.

As soon as the survivors were on the cutter, Senior Chief Hospital Corpsman William J. Kremer gave them first aid and medical care. For three hours he was too busy to take the men's temperatures. When he did, it was still only up to 94 degrees. Throughout the night he continued working over them. By Wednesday, January 12, he had them up and about.

The *Escanaba*, running low on fuel, was relieved by the Coast Guard Cutter *Barataria* of Portland, Maine, and headed for the nearest port, Argentia, Newfoundland. During the trip the cutter's crew learned that the dead man they had on board had left a wife and three children in Spain. They took up a collection to send to the widow.

When they arrived in Argentia Saturday morning, January 15, doctors at the U.S. Naval Air Station examined the survivors and found them in excellent condition. They credited Chief Kremer's skill, quick thinking, and hard work with saving their lives.

The men were taken to St. John's, Newfoundland, where they were met by an agent of the steamship company and a representative of the Spanish consul. Arrangements were made to fly them to Spain. ⚓

U.S. P&I Agency on—

Nonrigid Portable Ladders

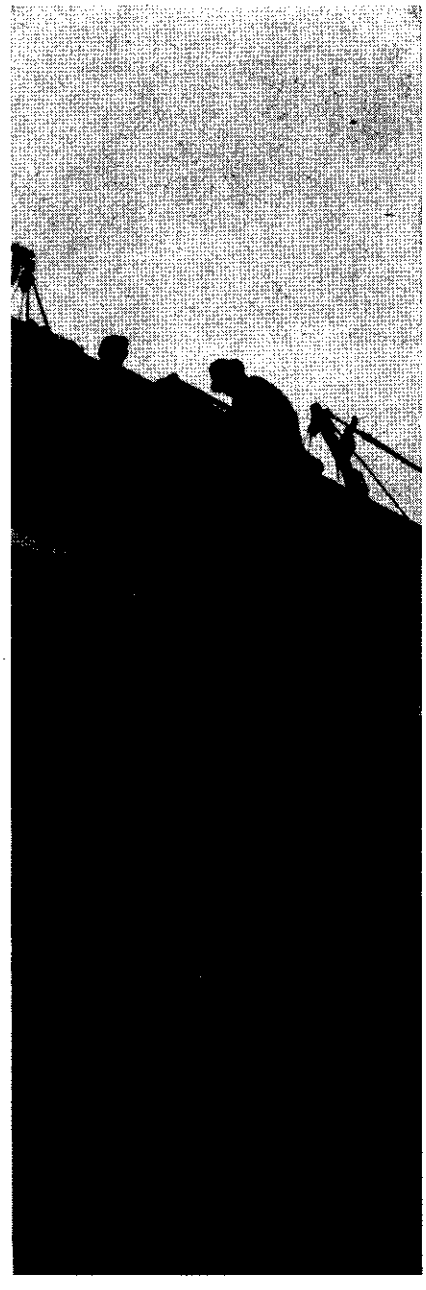
We tried to think of a better term to describe the pilot ladders and work ladders which are put over the side for various purposes, but by whatever name we call them, they can be a potential source of trouble unless certain basic precautions are observed. Here are some actual pilot ladder accidents.

A ship was at anchor behind the breakwater. The canal pilot had debarked and the vessel was waiting for tugs and a docking master to proceed to the dock. A small line had been fastened to the bottom of the pilot ladder which had been pulled part way up and secured. The tugboat came alongside and docking master attempted to board by climbing up this doubled-up pilot ladder. He got a short way up when the securing line let go dropping him to the deck of the towboat where he was knocked unconscious.

In another case, a Longshoreman was climbing back up a wooden oval rung work ladder from a barge moored alongside when one of the steps pulled out and he toppled back onto another Longshoreman. Both of them sustained serious injuries. Investigation indicated that the corrugated metal fasteners securing the rungs into the side pieces had rusted away and that several rungs were completely loose. Also, the manila throat seizings were rotted and steps were loose in the side lines.

In another, a ship was alongside a bulk dock where it was necessary to use a pilot ladder. The ladder had been in use all day by 50 or 60 men. After dark, a man was noticed to be lying unconscious on the dock. One rung of the ladder was found to be missing. It appeared that the surging of the vessel had caught the ladder between the string piece and the ship's side, causing the steps to become twisted and the rungs to loosen.

What can be done to protect against these booby traps? Obviously, a pilot ladder should be checked not only at monthly safety inspections but *before every use.* Check rungs to see that they are secured into the side pieces, see that the side pieces are not split or crushed, check the marline throat seizings for good condition, and look at the side lines for cuts or evidences of other abuse.



Jeff Blinn Photo
Courtesy Moran Towing

A properly rigged pilot ladder is well secured. A lifeline is provided for hoisting up small items of personal equipment. Proper illumination must be provided at night but it must not be a spot light shining directly down, which blinds a man trying to climb up. When ships are light it is good practice to put bamboo spreaders every 15 feet or so, to prevent the ladder from twisting. Oak 1" x 6" pieces secured to the outsides of the lower two steps will give these protection against crushing. While these add some extra weight, they are more satisfactory than a heavy 4" x 6" block secured to the bottom of a ladder.

Do not forget the lifering with heaving line attached. If a man does get in the water a few seconds saved in getting the ring to him will often be the difference between life and death.

After the ladder is used it should be pulled completely back aboard and put in a safe place. If left lying on the main deck it is subject to abuse. Stevedores land pontoons and hatch beams on it, tag lines are cut and it is always a tripping hazard. Many ships around the coast make it a practice to heave it up to the rigging where it is clear of the deck and yet readily accessible. Others have a special box on the boat deck for stowage.

When using a ladder yourself be sure it is well secured, send your gear up in a bucket or on the end of a line. Trying to climb a pilot ladder holding onto a brief case or an overnight bag or a few shore purchases is a rather frustrating experience that often ends about halfway up. *Grasp the side lines, not the rungs!* It is seldom that the side lines let go. A firm grip on these will save you if a rung or step does give way. ⚓

By Robert H. Smith

USCG 1965

A cutter on patrol off Vietnam.

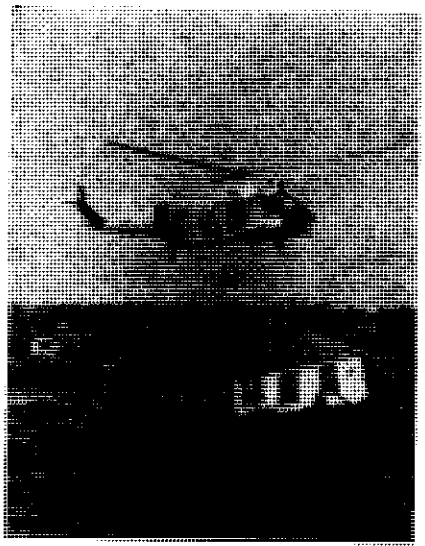
IN ONE OF the biggest lifesaving years of its 175-year history, the U.S. Coast Guard during 1965 saved or rescued from peril more than 15,000 persons.

The value of property saved was nearly $1.9 billion, or more than four times the Coast Guard's appropriation for the year.

Contributing to the high total were the Cuban small boat exodus, Hurricane Betsy, and the springtime Mississippi floods.

Cuban Exodus.—In the fall of 1965, Coast Guard air and surface units patrolling the Straits of Florida were confronted with a major emergency created by a heavy small-boat exodus from Cuba. It began shortly after Cuban Premier Fidel Castro in September 1965 announced a relaxation of his government's policy on migration from Cuba. Hundreds of small craft of all types undertook the hazardous journey from the U.S. mainland to the small Cuban fishing port of Camarioca to pick up relatives. Most of them were unsuited to operation in the treacherous Florida Straits. Coast Guard aircraft in cooperation with surface units kept close watch over these waters, alert for any emergency. This was in addition to normal search and rescue activity in the much frequented waters of southern Florida.

A U.S. Coast Guard HH-52A helicopter basket scoops up a stranded man from the rooftop of a home that was shattered by hurricane "Betsy" near Delacroix, La.



Working around the clock, the Coast Guard assisted approximately 3,000 persons in an operation reminiscent of the "matchbox fleet" which pulled nearly 1,700 allied soldiers out of the English Channel during the Normandy invasion of World War II. The fleet of wooden 83-footers had been sent at President Roosevelt's request to assist in search and rescue operations during the invasion of Europe.

Hurricane Betsy.—Coast Guard rescue facilities were put to a stern test in September 1965 when Hurricane Betsy slammed viciously into the Southeast, centering her fury upon the New Orleans, La., area. By the time the storm had spent itself, 11 Coast Guard helicopters had evacuated 1,144 persons, transported 22 medicos, and flown 140 sorties. They were assisted by units of the Navy, National Guard, Red Cross, and local groups.

By small boats and vehicles, men of Coast Guard Base, New Orleans, evacuated 3,600 persons and transported approximately 100 tons of food, water, and medical supplies. At its supply depot in New Orleans, the Coast Guard helped to bring more than 8,000 persons from flooded areas to high ground.

One of the many human dramas of Hurricane Betsy concerned a party of blind persons stranded on a rooftop. To reach them, a Coast Guard helicopter pilot had to make a dangerous rooftop landing. The operation was carried out without a hitch due largely to the courage and cooperation of the blind men and women. Said the pilot later: "The courage of this group struck me because of the sharp contrast in the orderliness and patience as we lifted these blind individuals by basket into the helicopter. They were the easiest load that we picked up that entire day. It is difficult for me to place myself in their position, having been exposed to terrifying elements for about 24 hours, and then to have the thunderous noise of a helicopter descend on them for a rescue. It is a rescue that I will never forget."

Mississippi Floods.—Approximately 800 rescues took place during the disastrous floods in the spring of 1965 when the swollen Mississippi and its tributaries rampaged over the adjacent countryside, causing havoc in America's heartland. Coast Guard helicopters and small boats labored tirelessly to bring stranded men, women, and children to safety. Coast Guardsmen herded buffalo to safety, evacuated flood victims, transported workers, medicine and food, and

MARITIME SIDELIGHTS

helped parents salvage their children's Easter baskets.

Automated Merchant Vessel Reporting Program (AMVER).—The Coast Guard through its AMVER program saved additional scores of persons in 1965. Utilizing this computerized search and rescue operation, centered in New York City, the Coast Guard brought assistance to many distressed ships and persons. In the summer of 1965, AMVER was extended to the Pacific Ocean area.

Vietnam.—At the other side of the world, in war-torn Vietnam, 17 of the Coast Guard's 82-foot patrol boats were on duty helping to choke off the flow of supplies by water from North Vietnam to Viet Cong units in the south. They made a good account of themselves in action against the enemy, sinking several Viet Cong junks and supporting ground action by South Vietnamese and U.S. troops.

Oceanography.—As part of its expanding oceanographic program, the Coast Guard Cutter *Northwind* carried out a 5-month study of the little known Kara and Barents Seas north of the Soviet Union.

For the first time, scientists had an opportunity to secure important information on the nature, structure, and history of this remote part of the world. The study could shed new light on the origin of the earth itself.

Icebreaker Transfer.—Under an agreement between the U.S. Navy and Treasury Departments, five Navy icebreakers will be transferred to the U.S. Coast Guard. Effect of the transfer will be to make the Coast Guard the chief icebreaking agency for the Federal Government.

Fleet Modernization.—Plans to modernize the Coast Guard's surface fleet went briskly ahead with the launching of the 210-foot medium endurance cutter *Active*, three new 157-foot buoy tenders, *Red Wood*, *Red Birch*, and *Red Beech*. In December 1965, the Coast Guard launched its first new "Secretary" class cutter, the 378-foot *Hamilton*. She will be a high endurance cutter, incorporating many advanced features.

Altogether, 1965 was a memorable year for this small service of 32,000 men. ⚓

DELAWARE SEA LANE APPROACHES STUDIED; LIGHTSHIPS MOVED

The U.S. Coast Guard has convened a committee in Philadelphia, Pa., to study the establishment of sea lanes offshore in the approaches to the Delaware Bay.

Appointed chairman of the committee was the Industrial Relations Manager of Gulf Oil Corp., New York, Captain E. Marcus. Consideration will be given to traffic patterns from Barnegat Light, N.J., to Fenwick Island, Del.

The Commander, Third Coast Guard District, Rear Admiral Irvin J. Stephens, USCG, has also appointed a similar committee for the approaches to New York harbor.

The committee includes representatives of the Coast Guard, Corps of Engineers, Coast and Geodetic Survey, the Pilots' Association for the Bay and River Delaware and other marine interests.

Captain John F. Thompson, USCG, officer in charge, Marine Inspection, Philadelphia, may be contacted for additional information on the activities of this group.

In a related action, the U.S. Coast Guard shifted three lightships in the Delaware Bay area last fall.

The Coast Guard lightships are involved in changes brought about by the long-range program of replacing lightships with more economical offshore structures.

Lightship WLV–537, former "Relief" vessel for both Five Fathom Bank and Delaware Stations retired at simple ceremonies at the Coast Guard Station, Cape May, N.Y., Nov. 5, 1965. She ended a 36-year career of guiding mariners toward safe ports.

Lightship WLV–538 is the new Delaware Lightship, taking her station November 22, 1965. She had been replaced by an offshore light structure at Chesapeake marking the entrance to Chesapeake Bay, Va.

Lightship WLV–529 formerly the Delaware Lightship is to be renamed "Relief" and will substitute for Five Fathom Bank and Delaware vessels.

These aging vessels were built in 1923, 1929, and 1930 respectively. ⚓

AMBROSE LIGHT TOWER CONSTRUCTION CONTRACT AWARDED BY USCG

The U.S. Coast Guard has awarded a $2.4 million contract to Tidewater-Raymond-Kiewit Construction Corp., for the construction of the Ambrose offshore light structure to mark the entrance to Lower New York Bay, approximately 7.4 miles east of Sandy Hook, N.J.

Construction of the light station will begin in March and will be completed in the summer of 1967.

The four legged tower will be located in 75 feet of water. Its legs will be anchored 170 feet into the Atlantic Ocean floor. The top of the six million candlepower light tower will be located 141 feet above mean high water.

The red Ambrose light structure will be manned by six Coast Guardsmen and will replace Ambrose Lightship and its relief lightship. ⚓

SS ROBIN SHERWOOD HONORED FOR RESCUE

A "needle-in-a-haystack" type of sea rescue has been publicly recognized with the American-flag cargo ship *Robin Sherwood* of Moore-McCormack Lines receiving the Ship Safety Achievement Citation of Merit from the American Merchant Marine Institute and the Marine Section, National Safety Council.

On November 12, 1964, the *Robin Sherwood*, under command of Capt. Soren Brinch, was eastbound in the Atlantic, about 150 miles west of Ascension Island, when she received a relayed distress call from a pilot about to ditch his private plane in the ocean. Hastening to the position given, the ship found the plane still afloat, but the pilot's raft had disappeared. Throughout the night the hunt continued by searchlight, while Capt. Brinch calculated the raft's probable drift and planned a search plot for the next day. At daybreak, on her first "pass," the *Robin Sherwood* spotted the missing man, who had been drifting without food or water for 28 hours in shark-infested waters, and took him aboard uninjured. ⚓

AMENDMENTS TO REGULATIONS

TITLE 46 CHANGES

SPECIFICATIONS FOR LIFESAVING APPLIANCES CORRECTED

Specification regulations for certain lifesaving appliances found in the Federal Register and the Code of Federal Regulations have been compared with the text of Coast Guard printed specifications and a number of minor variations were noted. In the Federal Register of January 18, 1966, will be found corrections to specifications for ring life buoys, inflatable liferafts, buoyant vests, semiportable fire extinguishers, and plastic foam buoyant sheets and shapes.

CIRCULAR

GUIDE FOR PLAN REVIEW OF CENTRAL CONTROL VESSELS ISSUED

During the last few years various merchant vessel designs have been submitted which set forth several concepts of pilothouse control, centralized engineroom control, and automatic boiler control. These designs were reviewed by the Coast Guard on an individual vessel basis; and, when determined to be satisfactory from the standpoint of safe operation, the plans were approved. During the foreseeable future vessel plans utilizing these concepts, or portions thereof, will continue to be reviewed on an individual vessel basis.

Navigation and Vessel Inspection Circular 15–65 contains a guide based on the review of plans for merchant vessels having centralized control of main and auxiliary machinery which have been approved. The Coast Guard's current views regarding use of centralized controls and automation of the main and auxiliary machinery are set forth in this guide. It is furnished for informational purposes and as such is not intended to be a directive or to limit in any way the use of different systems. The scope or arrangement of centralized controls is not intended to be specified, but rather the guide should serve as a training aid and to describe in general terms those features of centralized controls believed to be desirable. It is realized that a particular shipboard installation may have all or only portions of the centralized controls described in the guide. NVIC 15–65 may be obtained at the local marine inspection office or by writing Commandant, U.S. Coast Guard, Washington, D.C., 20226. ‡

BACKFIRE FLAME ARRESTERS, GASOLINE ENGINES

The following is the status of the backfire flame arrester approvals as of January 4, 1966:

a. On January 1, 1966, all certificates of approvals issued under specification 162.015 were terminated. Flame arresters approved under specification 162.015 and manufactured prior to January 1, 1966, may be sold and continued in use as long as they are serviceable and in good condition.

b. The following backfire flame arresters have been approved under the new specification 162.041 as of January 4, 1966:

Model	*Manufacturer*	*Certificate of approval*
Volvo No. 886437	Chrysler Corp	162.041/1/0
400-1	Barbron	162.041/2/0
400-2	do	162.041/3/0
400-3	do	162.041/4/0
400-4	do	162.041/5/0
400-6	do	162.041/6/0
400-7	do	162.041/7/0
400-8	do	162.041/8/0
400-11	do	162.041/9/0
400-12	do	162.041/10/0
400-13	do	162.041/11/0
400-14	do	162.041/12/0
400-15	do	162.041/13/0
400-16	do	162.041/14/0
38508A2	Kiekhaefer Corp	162.041/15/0
145B354	Onan	162.041/16/0
E2470	Industrial Strainer	162.041/17/0
2365	do	162.041/18/0
1100	Fisher	162.041/19/0
1125	do	162.041/20/0
1150	do	162.041/21/0
1175	do	162.041/22/0
2100	do	162.041/23/0
2125	do	162.041/24/0
2150	do	162.041/25/0
2175	do	162.041/26/0
3125	do	162.041/27/0
3150	do	162.041/28/0
4100	do	162.041/29/0
4125	do	162.041/30/0
4150	do	162.041/31/0
4175	do	162.041/32/0
4200	do	162.041/33/0
4250	do	162.041/34/0
5100	do	162.041/35/0
5125	do	162.041/36/0
5150	do	162.041/37/0
5175	do	162.041/38/0
5200	do	162.041/39/0
5250	do	162.041/40/0
6100	do	162.041/41/0
6125	do	162.041/42/0
6150	do	162.041/43/0
Volvo No. 825681	Chrysler Corp	162.041/44/0

c. It is anticipated that within the next few weeks an additional 21 models will be approved under 162.041.

d. The following engine air and fuel induction systems have been approved under specification 162.042:

Engine model	*Manufacturer*	*Certificate of approval*
OMC 488 Model DU	Outboard Marine	162.042/1/0
OMC 490 Model DU	do	162.042/2/0

It is to be noted that the Outboard Marine Corp. had two engines (480 Model DU, and FI 90 Model DU) previously accepted for operation without backfire flame arresters because of their design features. These engines are clearly marked as such by the manufacturer. These engines manufactured prior to January 1, 1966, are not required to exhibit a certificate of approval number and may be continued in use.

e. There have been no certificates of approval issued under specification 162.043, Backfire Flame Control, Engine Air Induction Systems.

MERCHANT MARINE SAFETY PUBLICATIONS

The following publications of marine safety rules and regulations may be obtained from the nearest marine inspection office of the U.S. Coast Guard. Because changes to the rules and regulations are made from time to time, these publications, between revisions, must be kept current by the individual consulting the latest applicable Federal Register. (Official changes to all Federal rules and regulations are published in the Federal Register, printed daily except Sunday, Monday, and days following holidays.) The date of each Coast Guard publication in the table below is indicated in parentheses following its title. The dates of the Federal Registers affecting each publication are noted after the date of each edition.

The Federal Register may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402. Subscription rate is $1.50 per month or $15 per year, payable in advance. Individual copies may be purchased so long as they are available. The charge for individual copies of the Federal Register varies in proportion to the size of the issue but will be 15 cents unless otherwise noted in the table of changes below. Regulations for Dangerous Cargoes, 46 CFR 146 and 147 (Subchapter N), dated January 1, 1965 are now available from the Superintendent of Documents, price $2.75.

CG No.	TITLE OF PUBLICATION
101	Specimen Examination for Merchant Marine Deck Officers (7–1–63).
108	Rules and Regulations for Military Explosives and Hazardous Munitions (8–1–62).
115	Marine Engineering Regulations and Material Specifications (9–1–64). F.R. 2–13–65, 8–18–65, 9–8–65.
123	Rules and Regulations for Tank Vessels (4–1–64). F.R. 5–16–64, 6–5–64, 3–9–65, 9–8–65.
129	Proceedings of the Merchant Marine Council (Monthly).
169	Rules of the Road—International—Inland (9–1–65). F.R. 12–8–65, 12–22–65.
172	Rules of the Road—Great Lakes (6–1–62). F.R. 8–31–62, 5–11–63, 5–23–63, 5–29–63, 10–2–63, 10–15–63, 4–30–64, 11–5–64, 5–8–65, 7–3–65, 12–22–65.
174	A Manual for the Safe Handling of Inflammable and Combustible Liquids (3–2–64).
175	Manual for Lifeboatmen, Able Seamen, and Qualified Members of Engine Department (3–1–65).
176	Load Line Regulations (7–1–63). F.R. 4–14–64, 10–27–64, 9–8–65.
182	Specimen Examinations for Merchant Marine Engineer Licenses (7–1–63).
184	Rules of the Road—Western Rivers (6–1–62). F.R. 1–18–63, 5–23–63, 5–29–63, 9–25–63, 10–2–63, 10–15–63, 11–5–64, 5–8–65, 7–3–65, 12–8–65, 12–22–65.
190	Equipment lists (8–3–64). F.R. 10–21–64, 10–27–64, 3–2–65, 3–26–65, 4–24–65, 5–26–65, 7–10–65, 8–4–65, 10–22–65, 10–27–65, 1–27–66.
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel (2–1–65). F.R. 2–13–65, 8–21–65.
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (10–1–63). F.R. 11–5–64, 5–18–65.
220	Specimen Examination Questions for Licenses as Master, Mate, and Pilot of Central Western Rivers Vessels (4–1–57).
227	Laws Governing Marine Inspection (3–1–65).
239	Security of Vessels and Waterfront Facilities (7–1–64). F.R. 6–3–65, 7–10–65, 10–9–65, 10–13–65.
249	Merchant Marine Council Public Hearing Agenda (Annually).
256	Rules and Regulations for Passenger Vessels (4–1–64). F.R. 6–5–64, 8–21–65, 9–8–65.
257	Rules and Regulations for Cargo and Miscellaneous Vessels (9–1–64). F.R. 2–13–65, 3–9–65, 8–21–65, 9–8–65.
258	Rules and Regulations for Uninspected Vessels (1–2–64). F.R. 6–5–64, 6–6–64, 9–1–64, 5–12–65, 8–18–65, 9–8–65.
259	Electrical Engineering Regulations (7–1–64). F.R. 2–13–65, 9–8–65.
266	Rules and Regulations for Bulk Grain Cargoes (7–1–64).
268	Rules and Regulations for Manning of Vessels (2–1–63). F.R. 2–13–65, 8–21–65.
269	Rules and Regulations for Nautical Schools (5–1–63). F.R. 10–2–63, 6–5–64, 8–21–65, 9–8–65.
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, 9–8–65.
293	Miscellaneous Electrical Equipment List (6–1–64).
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, 4–24–63, 10–27–64.
323	Rules and Regulations for Small Passenger Vessels (Under 100 Gross Tons) (1–3–66).
329	Fire Fighting Manual for Tank Vessels (4–1–58).

CHANGES PUBLISHED DURING JANUARY 1966

The following have been modified by Federal Register:
CG–190, Federal Register January 27, 1966.

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