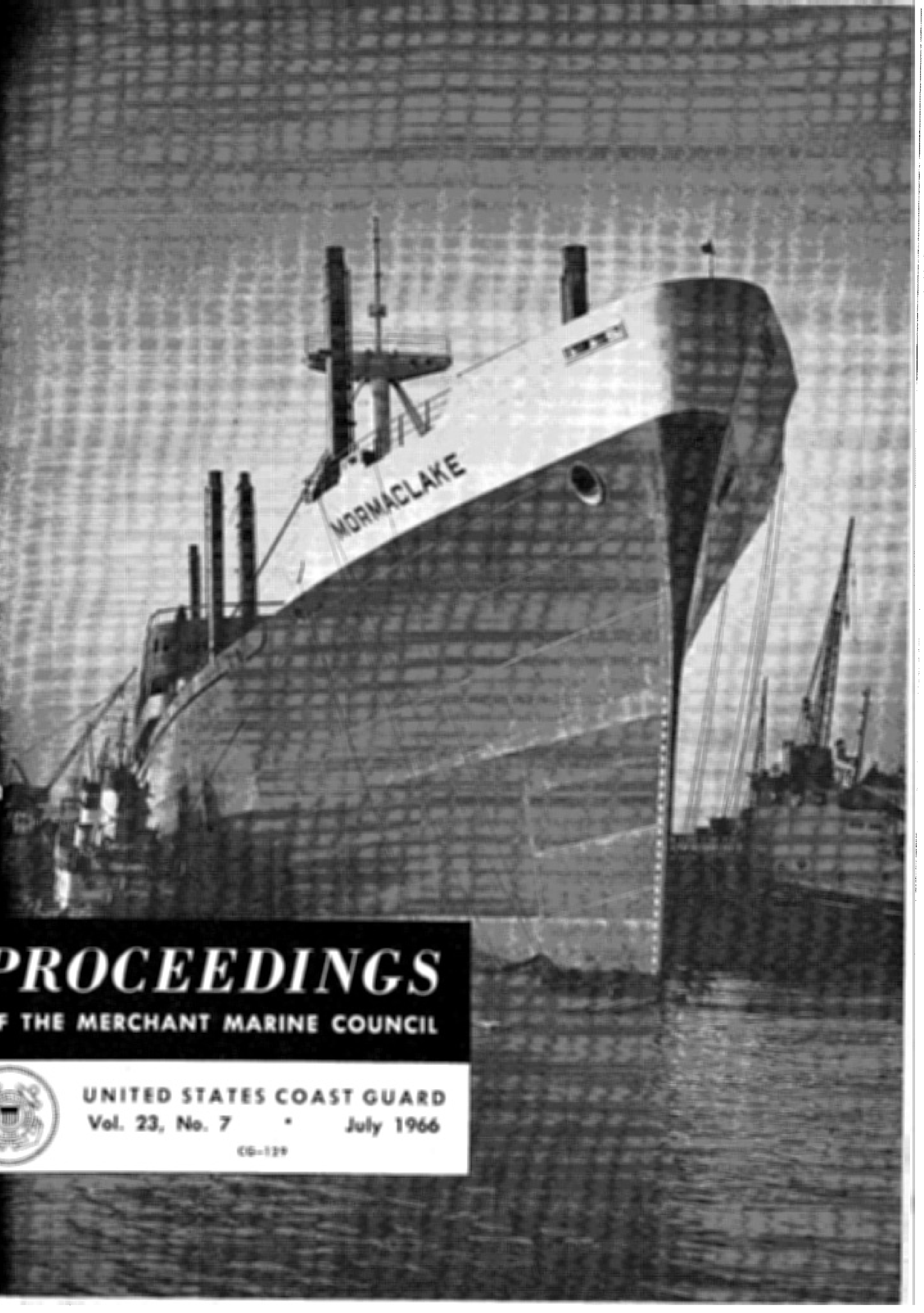

PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

UNITED STATES COAST GUARD

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CG-129

IN THIS ISSUE . . .

New Commandant . . .

Combustible Gas Indicators . . .

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

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COVERS

FRONT: The Sun built *Mormaclake* moments after launching riding high in the chilly waters of the Delaware River at Chester, Pa.

BACK: Safety poster from the Mobil Life Preserver. Published in the interest of marine safety by the Marine Department of Socony Mobil Oil Co., Inc.

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PROCEEDINGS

OF THE

MERCHANT MARINE COUNCIL

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220-304—66

AT THE CHANGE of command ceremony 31 May, left to right, Lt. Cdr. T. W. Kirkpatrick, Aide to the Commandant; the new Commandant, Admiral W. J. Smith; Secretary of the Treasury H. H. Fowler; Assistant Secretary True Davis; Admiral E. J. Roland, retiring Commandant.

NEW COMMANDANT

Adm. W. J. Smith, 56, a native of Suttons Bay, Mich., has become the 13th Commandant of the U.S. Coast Guard at ceremonies held on board the Coast Guard Cutter *Campbell* on May 31, at Washington, D.C.

Admiral Smith relieved Adm. Edwin J. Roland, 61, who retires after 37 years of service and 4 years as Commandant.

The oath of office was administered by Assistant Secretary of the Treasury True Davis.

Admiral Smith is a 1933 graduate of the Coast Guard Academy. In 1939 he was assigned to flight training at Pensacola, Fla., and became a Coast Guard aviator in June 1940. Aviation assignments took him to the Coast Guard Air Station at San Francisco during World War II and to Traverse City, Mich., in 1946 where he commanded the Coast Guard Air Station.

In 1951 he was graduated from the Armed Forces Staff College at Norfolk, Va. Later he commanded the Coast Guard's largest icebreaker, the *Mackinaw*, on the Great Lakes.

President Kennedy nominated him for flag rank effective July 1, 1962. He then became Superintendent of the Coast Guard Academy at New London, Conn.

His latest assignment was as Commander, 9th Coast Guard District, in command of all Coast Guard forces on the Great Lakes.

Admiral Smith is married to the former Harriet A. Lary of Los Angeles, Calif. They have one son, Jeffrey, and a daughter, Lary Smith.

Admiral Roland, a native of Buffalo, N.Y., was graduated from the Coast Guard Academy in 1929.

Early in Admiral Roland's career he served on board Coast Guard destroyers detailed to suppress "rum-runners" during Prohibition. In 1936, while on board the cutter *Cayuga* he took part in the evacuation of

(Continued on page 150)

COMBUSTIBLE GAS INDICATORS

How does a combustible gas indicator work? What properties of the air-gas mixture can one determine by the use of this instrument? Richard O. Fleming, Chairman of the Marine Chemists Association, gave answers to these and other questions at the Marine Section of the National Safety Congress last fall. In the interest of marine safety we reprint his paper with pleasure.

Courtesy Newport News Shipbuilding

FOR NEARLY 2 YEARS now it has been a Federal regulation to have a combustible gas indicator aboard all tankships and tank barges. This regulation came into being on June 5, 1964, in the Code of Federal Regulations, section 35.30–15. Since these regulations are enforced by the U.S. Coast Guard, I would believe all our vessels now have combustible gas indicators aboard.

This regulation was made for one prime reason, that being safety. It was believed that with a combustible gas indicator aboard, a man would not have to enter a compartment subject to gas accumulation without its first being tested and proved safe. Testing is usually done by a chief mate or captain at times when a marine chemist is not available or needed. This situation usually arises when the vessel is at sea or at a remote berth. Often a reach rod needs reconnecting, a leaky cargo line or coil needs banding, or a cement box installed to stop a leak.

Since we assume that all vessels have a combustible gas indicator aboard, we should be able to assume that someone aboard knows how to operate the instrument accurately; this is not the case. I have been on at least a dozen vessels this year where I was met by the officer on watch, have told him that I was sent by the shipyard or owner to check the vessel to see if it was gas free, and when I took out my combustible gas indicator he would say, "Say, I have one of those gadgets in my room; the company sent it a few months ago." Next, he often would ask if I would show him how it operates after I had completed my inspection. We usually would find a new meter without batteries or a book of instructions. Either the instruction book had not been sent with the meter or had not been referred to by the officer. This is not a criticism of anyone aboard a vessel who has a gas indicator and does not use it. More often than not they are not properly instructed in the use of the meter and thus apprehensive about using it.

The purpose of this paper is to better familiarize each one of us with the proper use, care, and limitations of combustible gas indicators.

Your life or the life of someone else may be dependent on the care with which you handle any combustible gas indicator. The sensing elements are only three one-thousandths of an inch in diameter, and the careless dropping of the instrument might very easily bend or distort the fine coils of these sensing elements, and thus, upset the calibration of the instrument. Then, too, the meter consists of a needle or pointer on a sensitive pivot. This pivot is mounted on a very small bearing. A severe jar may damage the pivot bearings.

A combustible gas indicator is an instrument for detecting gas-air or vapor-air mixtures in terms of their explosibility, to determine whether the mixture is safe against the possibility of fire or explosion.

Everyone who may have occasion to use a combustible gas indicator must become thoroughly familiar with the operation and limitations of the indicator, and should satisfy himself that the instrument is in proper operating condition.

Before going into details of operation and the interpretation of readings, it seems desirable to get certain definitions clearly in mind. While these definitions are probably well known, their repetition may help to clarify certain points which will be presented later on.

Lower Explosive Limit (L.E.L.)—This is the leanest mixture of gas or vapor in air, where once ignition occurs, the gas or vapor will continue to burn after the source of ignition has been removed.

Upper Explosive Limit (U.E.L.)—This is the richest mixture in which a flame will continue to burn after the source of ignition has been removed.

Explosive Range (Flammability Limits)—The explosive range exists between the L.E.L. and U.E.L.

Flashpoint—The flashpoint of a flammable liquid is the lowest temperature at which it gives off enough vapors to form a flammable or ignitible mixture with air near the surface of the liquid or within the container used.

By Richard O. Fleming

Flashpoints vary with temperature, for example:

Kerosene, a high-flash product at room temperature, gives off almost no vapor, hence, an extremely low reading, if any, on a combustible gas indicator. Should you heat the kerosene, more vapors will be liberated, and you might expect a higher reading on the combustible gas indicator, providing the vapor does not condense back to a liquid before it reaches the analyzer cell. This vapor, which is being liberated due to the elevated temperature, may ignite when a source of ignition is present.

Gasoline, a low-flash product, at room temperature, will liberate an explosive mixture, which is extremely dangerous. A combustible gas indicator will indicate the concentration of the gasoline vapor present. Gasoline will continue to give off vapors and will not condense back into a liquid until an extremly low temperature is reached. If this were not the case, our automobiles would not run in cold weather.

Fire and Explosion Characteristics

Fire—The combination of vapor, air, and heat results in a fire.

Flash Fire—The combination of an accumulation of vapor with air and heat in an open area will result in a flash fire.

Explosion—The combination of an accumulation of vapor, air, and heat in the correct proportions in a confined space results in an explosion.

Under all of the above, both the air and the heat remain constant, but the change in the fuel-vapor caused the fire or explosion.

Principle of Operation

Catalytic combustion is the burning of a combustible gas or vapor in air on a catalytic filament. A catalyst is a substance which accelerates a chemical reaction (the burning) without entering into the reaction. There are various catalysts. Most manufacturers of combustible gas indicators use a platinum wire filament, primarily because it is a good catalyst, and platinum wire has a high temperature coefficient of resistance. In other words, the resistance of the wire changes materially at different temperatures, thus, when such a filament is set up in a bridge circuit, it serves as the basic operating principle of a combustible gas indicator.

The name for the Wheatstone bridge circuit comes from its inventor. It was primarily designed for measuring resistance and actually, when used in catalytic-type instruments, it is the change in resistance of the active filament, caused by the burning of the gas or vapor sample which causes a current to flow through the meter.

The manufacturers of combustible gas indicators make available several different models. Care should be taken in selecting the correct instrument for specific applications.

Many companies use these instruments for what we refer to as "Go—No Go," or to determine whether a flammable gas or vapor is present. They are not particularly interested in the actual percent of the gas or vapor present.

Testing steps often overlooked should be emphasized and practiced.

First Step: Test for tightness.—Any time a filament is replaced in the analyzing chamber, or any other work done on the sampling system, the indicator should be tested for tightness before being assembled and put into service.

With a finger held firmly over the inlet of the instrument, squeeze the aspirator bulb and hold a finger firmly over the outlet valve of the bulb. If all connections are tight, the bulb will remain deflated. If the bulb inflates, there is a leak in the system and it should be found and remedied.

Second Step: Sampling.—The directions for sampling are on the nameplate in full view of the operator. These directions should be followed in proper order.

How to Check the Calibration

The assurance that a combustible gas indicator is in proper working condition, and, therefore, will give a reading of a gas and/or vapor air mixture which can be relied upon, is of prime importance in preventing property damage or loss of life.

An instrument which has been damaged or whose filament has been contaminated may give false readings and thereby lead to a false sense of security. Therefore, the matter of frequent testing of instruments assumes great importance.

One method of calibration consists of a known mixture of gas in the cylinder which is released into the evacuated bag. A sample of the bag is drawn into the combustible gas indicator. The reading is noted and compared with the correct reading shown on the label attached to the cylinder. Correct readings for all model instruments are shown on the label.

Accessories for Specific Problems

Probes are usually used when testing overhead, so that the hose may be correctly placed in the area to be sampled. A plastic probe is indicated whenever sampling is done in an area where electrical current might be present.

Various lengths of hoses are available for sampling from a distance. Always use the correct hose for the gas being sampled. Consult the manufacturer of the instruments for his suggestions. Incorrect hose may absorb your sample and give an inaccurate reading up to 80 percent.

A Liquid Trap is placed on the inlet of a gas indicator to keep all liquids out of the instrument. A ball rises with the liquid and sits on a fitting, thus stopping the liquid and/or gas sample before it reaches the instrument. The largest number of repairs required on all instruments has been caused by liquid entering the instrument.

It is important to know where to test in an area or vessel. Some gases or vapors are heavier than air and will be found at the lowest point in a vessel or confined area. The direct opposite will apply for gases that are lighter than air. In the case of a flammable gas or vapor that is leaking from a vessel or pipe, the same situation exists. In certain instances, any movement of air could be a factor and should be considered. If in doubt, tests should be conducted at various levels.

Courtesy Newport News Shipbuilding

Interpretation of Readings

The face of the meter must be watched when testing or a serious misinterpretation of the reading can result. An extremely rich mixture can become highly flammable when diluted with air.

Translation of Readings

The same instrument obtaining the same reading could have different meanings, depending upon the gas or vapor being sampled. This is the reason for the occasional need of calibration curves for field reference. When the needle shows explosive when you are at the lower explosive limit of hexane, other gases and vapors will read explosive when, actually, they are below the lower explosive limit. Thus, there is a safety factor built into the instruments. For example, if the meter reads full scale or explosive for hexane, actually there is only 68 percent of the lower explosive limit of hydrogen present. Most of the combustibles, commonly encountered in industry, have curves lying to the left of hexane curve, thus giving extra safe readings.

Do's and Don'ts

(1) Keep your eye on the meter. Remember, you may sample a rich mixture which will cause the needle to go up scale and return to zero without you noticing it. Thus, an unsafe conclusion could be drawn.

(2) Select the correct sampling hose for your specific application.

(3) Follow the proper instructions for the care and maintenance of your indicator.

(4) Always use the shortest length of sampling hose. It will minimize the possibility of vapors condensing in the hose.

(5) Whenever a reading is obtained, it is always wise to clear the instrument, zero in fresh air, and take a second test to be certain of an accurate reading.

(6) It is always well to purge the meter by aspirating the bulb in fresh air, even if another sample is not to be taken right away, as this removes any possibility of corrosive gases in the combustion chamber.

(7) Check the calibration of your instrument to be sure that it is reading correctly.

(8) Check your battery voltage and/or zero adjustment periodically.

(9) Check your instrument for tightness.

(10) Don't sample from elevated temperatures into a cold instrument. Condensation may occur and give a false reading. Whenever possible, the instrument should be at the same temperature of the vapor being tested.

(11) Don't remove the flashback arrester from the instrument. It prevents the explosion which occurs in the combustion chamber from passing back to the mixture being sampled.

(12) Don't use the indicator for sampling gasoline vapors containing Tetra Ethyl lead, unless the indicator has been approved for this application.

(13) Don't let your sampling hose or probe reach into a liquid.

(Continued on page 150)

What is the law as it applies to desertion of seamen? How has it been interpreted by the court? The following article by Mr. Rogers, a member of the New York bar, sheds some light. It is reprinted by permission from the Journal of Commerce, *99 Wall Street, New York City.*

Law sets Deserter's Deserts

John S. Rogers

Unlike land based workers, a seaman cannot just up and quit his job whenever he feels like it.

A seaman, by his choice of calling, subjects himself to the rigors of shipboard discipline, and the unreasonable quitting of his ship may amount to the statutory offense of desertion, with the prescribed punishment and lingering stigma which follow.

The law is laid down in a statute which comes down to us from a time when most mariners were serving under sail. Section 701 of the U.S. Code's Title 46 begins:

PUNISHMENT STATED

"Whenever any seaman who has been lawfully engaged or any apprentice to the sea service commits any of the following offenses, he shall be punished as follows:

"First. For desertion, by forfeiture of all or any parts of the clothes or effects he leaves on board and of all or any part of the wages or emoluments which he has then earned."

The statute goes on to define and prescribe punishments for various other offenses, including "willful disobedience to any lawful command at sea" (for which the culprit may be "placed in irons until such disobedience shall cease,") and for continued disobedience or "willful neglect of duty at sea" (for which he may be "placed in irons on bread and water, with full rations every fifth day . . .").

A seaman's duty to his vessel commences from the time he signs the shipping articles, and from such time he may incur the penalty of desertion. Desertion itself involves a continuing intentional absence from the ship, constituting a quitting of the service of the vessel, rather than lesser absences from the ship without leave or sufficient reason, for which less drastic penalties are prescribed.

Like the statute, many of the cases thereunder were decided in the great days of sail. Thus, a seaman is justified in leaving his vessel through fear induced by cruel treatment and threats, and such departure does not constitute desertion. On the other hand, a master may inflict "moderate chastisement" on a member of his crew for disobedience of orders, and a single act of such kind, which does not exceed the bounds of moderation, will not justify the seaman in leaving the vessel before the expiration of his term of service.

Similarly, a seaman's sickness will justify his departure, which brings us down to modern times and the most recent case under Section 701.

In January, 1964, one Knutson signed on as an able bodied seaman for a foreign voyage and return aboard the S.S. *Wilderness.* At Singapore, in April, the master of the vessel recorded in the official Log Book that Knutson had deserted. His wages were forfeited and were deposited in the registry of the District Court in Oregon. Knutson brought a petition seeking the return of the wages on the ground that they were improperly forfeited.

His basic contention was that his actions in Singapore amounted at most, to a refusal to join his vessel without reasonable cause (one of the lesser charges under Section 701) and that he was subject to forfeiture of not more than two days' pay. This lesser penalty is applicable only when the seaman's conduct does not amount to desertion.

The Court listed the salient elements of desertion as the abandonment of duty by quitting a ship before the termination of the engagement without justification and with the intention of not returning.

The Court summarized the evidence as follows: Knutson demanded to be paid off at Singapore and, as a result, was taken to the American Consulate. At the Consulate, Knutson said that he did not want to be paid off, but insisted that he was unfit for duty and should be hospitalized. Knutson was then examined by two doctors, both of whom found him fit for duty. Knutson was taken by launch back to the vessel just prior to her departure. He refused to go aboard even after being warned that if he persisted in his refusal, he would be logged as a deserter.

The District Court found that "although Knutson was drunk at the time (just as he was when he testified in court), he was in possession of his mental faculties and he knowingly and intentionally refused to return to the vessel."

The Court found that the master had properly recorded Knutson as a deserter, held his wages forfeited, and directed that they be paid to the U.S. Treasury. (1965 American Maritime Cases, P. 1977.)

Lethal Gases

OF THE MANY gases which one encounters from day to day, some are inherently highly poisonous while others are dangerous only in large quantities. All, however, pose a potential danger which is sometimes not realized even after repeated and specific warnings. The following cases involve two of the more common gases and one less common but highly poisonous gas.

A ship was recently in a shipyard for repairs, with the reefer plant not in operation. On restarting, 500 pounds of dry ice was used to precool the reefer box until the refrigerating plant could cool the box. Orders were posted that no one was to enter the box alone. A steward entered the box, CONTRARY TO THE POSTED WARNING, and immediately passed out. The CO_2 converting from the solid state of dry ice to the gaseous state had depleted the oxygen supply. The victim fell on the dry ice, sustaining burns to his back which required 2 weeks' treatment and hospitalization.

Two crewmembers remained on a small inland vessel while it was at a shipyard undergoing repairs. One of them awoke from his sleep to find the quarters full of smoke and fumes. The oil-fired cook stove was discovered with the motor running and injecting fuel, but there was no fire in the stove. He found his fellow crewmember in such a condition that he had no control over his voice or limbs. Help was immediately summoned and the stricken crewman was taken to a local hospital where he revived in a very short time.

The two men returned to the vessel some 3 hours later and were met by shoreside personnel who had been supervising the repairs. These men disconnected the fuel injection motor lead from the electric power supply and instructed the two crewmen to keep one port open for ventilation. Specific orders were given NOT TO RESTART the stove. There was a portable electric heater in each of the compartments capable of providing sufficient heat.

The following morning, the shoreside personnel returned to the vessel to resume work. Upon opening the galley door, smoke and fumes poured out. Doors to the quarters were immediately opened for ventilation. Once again, the fuel injection motor was found operating and throwing unigniting fuel into the still-warm stove. This was turned off, and when smoke had cleared sufficiently to permit entrance to the quarters, the two crewmembers were found dead in their bunks. The deaths were the result of carbon monoxide poisoning.

Fumigation of ships is not uncommon; however, it is hazardous and requires the complete cooperation, understanding, and caution of all parties involved. The entomologist and others employed by a fumigating company cannot be expected to know the design and peculiarities of all ships; the master and his crew, likewise, cannot be expected to know the properties and dangers of the fumigant to be used. Consequently, a close working liaison must be maintained in order that all possible vents, valves, hatches, and other openings in the contaminated area be correctly and tightly sealed and that the master and crew be fully informed of the hazards and properties of the fumigant.

A series of events which occurred during the recent fumigation of a foreign ship in an American port exemplifies the tragedy which can result when the strictest attention is not paid to every minor detail. Khapra Beetles were discovered in holds Nos. 2, 3, and 5, and arrangements were made to exterminate them with Methyl Bromide.

Methyl Bromide gas is colorless and odorless except at relatively high concentration, and it is sufficiently toxic at ordinary temperature to present hazards of poisoning from vapor inhalation from single or repeated exposures. The signs and symptoms of fatal or near-fatal cases of poisoning by Methyl Bromide are predominantly due to the involvement of the lungs; however, the circulatory and nervous systems are often affected. A Halide gas detector is used to determine the amount of gas in the area. The flame has no color when the gas is not present, shading to green and then to blue when there is a heavy concentration.

After contract negotiations had been settled, the company employees began sealing the vessel at 1800. Circulation and evacuation fans were placed in the holds. All ventilation systems were shut down and sealed, and the holds were also sealed. The vessel's power was shut down in its entirety. An employee of the contracting company made an inspection tour of the vessel; and being certain that the holds were sealed and that the crew had evacuated the vessel, he ordered that gas be shot into holds 2 and 5 at 0600 the following day. The gas was given a 12-hour exposure time, but as the result of leakage from No. 2 hold to No. 1 and some overlooked unsealed ventilators, the period was extended. The ventilator leaks were made tight; however, the leakage into No. 1 hold was left to dissipate on the decision of the owner of the company. He felt this to be the best procedure provided no one entered the hold, but he did state that the leakage could be lethal if an individual were exposed to it.

At approximately 1300, the master returned to the vessel to ascertain whether the crew could return for the night. The fumigating company representative advised that, because of the leakage, he could not give an answer until later in the day. He also told the master that company employees would have to have access to all living areas so that a check could be made with Halide gas detectors. The master returned with the crew at approximately 1800 and was informed that the crew could board only on the condition that all quarters remain open so they could be tested for gas. The master made the decision to keep the crew aboard, and he was told by the company owner that, while everything was under control, no prediction could be made as to the

Recoiling Synthetic Lines

conditions which might exist when No. 5 was exhausted later in the evening.

The crew boarded the vessel and opened all living spaces which were then inspected by the master and a company representative with the Halide gas detector. Minute quantities of Methyl Bromide were found in two areas, a passenger's stateroom and one crewmember's room. No gas was detected elsewhere. It was agreed that an inspection tour would be carried out once each hour. The vessel was activated, and power was restored.

After having been ashore late in the evening, the master returned to the vessel at 0130 and proceeded to No. 5 hold which was in the process of being exhausted. He stood upwind of the hatch for some time, and shortly after his departure, orders were given to close all portholes to prevent admission of gas. An inspection tour was conducted shortly thereafter, and as of 0230 no gas was detected in the living quarters except in the after part of the ship. Between 0400 and 0500 company employees relieved one another, and an inspection tour was again conducted. All results were negative; however, the captain's cabin was not checked since it was locked.

At approximately 0645 the master complained of being sick and suspected he had food poisoning. When the Chief Mate entered the captain's cabin at 0745, he noticed the same odor as that coming from a fumigated hold. He immediately sent for the Halide gas detector, had the master moved to a passenger stateroom, and ordered the crew ashore. The Halide detector burned green and showed the same positive results in the chartroom and bridge.

The master was removed to a hospital where he died several hours later. Investigation revealed that the smoke-detecting apparatus had been functioning as late as 0800 when it was turned off by the Second Mate who noticed a strange odor emanating

(*Continued on page 150*)

SYNTHETIC LINES continue to claim lives at a fairly constant rate indicating that some seamen are still not aware of the great potential danger in improperly using these lines. Unfortunately, the victim is usually responsible for his own death because he failed to place himself in a safe position away from the line. However, in some instances, the line recoils so violently that even the most safety-conscious person is killed. Although the following cases occurred on towing vessels, the personnel of oceangoing ships are subject to and involved in very similar incidents.

A man was killed recently while a tug was engaged in relocating one of four anchors used by a large steam-driven pile driver. The master maneuvered in such a manner as to place the stern of his tug in such close proximity that his deckhand was able to hook the tug's line to the trip line of the anchor. The line used was a length of four-inch nylon with a hook spliced on one end. The running end of this line was led to a towing bitt on the stern and made fast.

The tug's master then put the engine full ahead; and less than a minute later, the tug came to a sudden stop as though the anchor had fouled and then it suddenly gained headway again. The master immediately realized that the line had parted, but he was not aware that his deckhand had been injured until he saw observers on the pile driver shouting and gesticulating. Running aft, he found the deckhand lying on the stern.

Subsequent investigation revealed that the line had parted outboard of the tug and whipped back aboard. A witness on the pile driver stated that the deckhand remained within 3 or 4 feet of the bitts after a strain had been taken on the line. The victim was apparently not aware of the danger which lurked in the towing hawser. It was the general opinion that a move in practically any direction away from the bitts would have assured his safety.

Another tug casualty in which a man was killed emphasizes the violence with which nylon lines can recoil and kill even the safety-minded. A barge was aground in a narrow channel, and the master of the towing vessel was engaged in the process of freeing the barge. An 8-inch nylon hawser was being utilized, and the distance between tug and tow was approximately 30 feet.

During the operation, the master was controlling the vessel from the after steering station on the port side of the upper deck, approximately 3 feet above the towing bitts. He warned the other two crewmembers to stand clear. The engineer went to the bow, and the victim went up the starboard side of the vessel, stopping near the engineroom door.

After 10 minutes at full power, the master was in the process of springing on his towline for the second time when it parted at the eye splice on the barge. The recoiling 8-inch line wrought havoc with everything with which it came in contact. It dented the after bulkhead of the deckhouse above the centerline porthole, tore 3 feet of hand railing from a vertical ladder, smashed a vapor globe assembly over a porthole 2 feet abaft the starboard engineroom door, and struck the deckhand, crushing his chest. The master later stated that he believed both these men to be in a safe position. He had not known a recoiling line to ever whip around a corner.

The primary safety measure when working with nylon lines is always to get some distance away from them; this would have saved the first victim's life. It is prudent to place oneself the greatest possible distance from the line in order to avoid the unexpected and bizarre violence which sometimes results from a whipping line. The victim in the latter case would probably have been alive if he had gone further forward or if he had stepped inside the engineroom door. The lack of awareness of the violent potential of parting nylon and attendant laxity in positioning oneself in the whip-danger area can be a most lethal combination. ⚓

MARITIME SIDELIGHTS

MERITORIOUS SERVICE MEDALS AWARDED

Two U.S. Merchant Marine Meritorious Service Medals have been recently awarded to American seamen.

Edward C. Hayes was decorated for his actions in rescuing the crew of the SS *Pioneer Muse* when she ran aground on October 9, 1961.

His heroic act is set forth in part in the following Citation: Early on October 9, 1961, the *Pioneer Muse* ran aground on an unlighted island 200 miles south of Okinawa, and immediately began breaking up in heavy seas. At dawn Chief Officer Edward C. Hayes was able to get down on the beach and by scrambling over the rocks and boulders, reached the shore. He realized that the vessel would have to be abandoned very soon, and also that many of the members of the crew would have extreme difficulty getting safely ashore over the rocky beach and through the seas breaking over the rocks. He returned to the ship to obtain a rope which he succeeded in making fast around an outjutting pinnacle of rock. Once more Mr. Hayes struggled over the boulders to reboard his ship where he rigged a snatch block and boatswain's chair to use as a breeches buoy. Through this means all of the crew were safely landed on shore. Mr. Hayes' skill in execution of a difficult operation very likely saved members of his crew from injury and death. His outstanding courage, determination, and complete disregard for his own safety, under extremely hazardous conditions, which made possible the successful rescue of the entire crew without injury or loss of life, merit high praise and are in keeping with the highest traditions of the U.S. Merchant Marine.

The Merchant Marine Meritorious Service Medal has been awarded to Mr. Leo Medlin for risking his life to save an unconscious coworker from death by scalding, while on duty aboard the USNS *Mission San Rafael*, then anchored in Salamis, Greece.

His heroic act is set forth in the following citation: On April 24, 1962, as the *Mission San Rafael* lay at anchor in Salamis, Greece, a crewmember on duty in the engineroom noticed the auxiliary generator blowing steam, caused by a leak in the main steam line. While hurrying to inform the engineer, the man struck his head on the coaming of the engineroom door and was knocked unconscious. At this time Fireman Leo W. Medlin came into the engineroom and found the man unconscious, bleeding profusely from a cut across his forehead. Extremely hot water was falling from the faulty valve overhead onto the injured man and he was enveloped in steam. This made it very difficult and dangerous for Medlin to help, but he managed to get hold of the unconscious man's arms and drag him clear of the danger area. Minutes later the leaking gasket blew out filling that entire end of the engineroom with steam. The courageous action and disregard for his own safety which made it possible to accomplish this rescue, and may have been directly responsible for saving another man's life, merits high praise, and is in keeping with the highest traditions of the U.S. Merchant Marine.

ADM. W. J. SMITH (left), the new Commandant of the U.S. Coast Guard, presents a National Safety Council award to Adm. Charles R. Khoury (Ret.) (right), vice president—lake shipping, of U.S. Steel, at a special ceremony held recently at Cleveland.

The award cited U.S. Steel's Pittsburgh Fleet as the safest inland water cargo carrier during 1965. During the ceremony, 27 other awards were made to captains and chief engineers for individual ship safety records. The Str. Benjamin F. Fairless, *operating for the past 17 years without a disabling injury, received an Award of Merit.*

SOLAS CONVENTION AMENDMENTS PROPOSED

Following the impact of the *Yarmouth Castle* disaster, the United States, at the 12th Session of the IMCO Maritime Safety Committee in early February 1966, made a strong appeal for a special meeting of the Committee to deal solely with the problem of fire safety in new and existing ships. Additionally, it was agreed to convene the Subcommittee on Fire Protection for a brief preliminary examination of possible actions to improve existing ships prior to the Committee meeting set for 3–10 May 1966.

At this special meeting, the 13th Session of the IMCO Maritime Safety Committee, the delegates considered proposals submitted by various governments for the improvement of fire safety on passenger ships. Several amendments to the 1960 International Convention for the Safety of Life at Sea were recommended for adoption and will be considered by an Extraordinary Session of the IMCO Assembly to convene 28 November 1966 at IMCO Headquarters in London. These proposed amendments, if approved by the Assembly, will then be submitted to all nations signatory to the 1960 SOLAS Convention for acceptance. All changes would become effective 1 year following such acceptance by a two-thirds majority of these nations.

Many of the amendments recommended by the Committee were based on proposals submitted by the U.S. delegation. These include:

1. Requirement that all vessels constructed prior to 1948 comply with most of the 1948 SOLAS standards as well as meet certain additional standards in some areas. Additional requirements were also proposed for those vessels constructed after 1948. With regard to fire safety, these new requirements would effectively eliminate the "grandfather clause" immunity currently enjoyed by older vessels which operate without compliance with 1960 SOLAS standards.
2. Requirement that all future passenger vessels contain automatic closures for ventilation systems, remote closure devices for fire doors, methods for assurance of immediate availability of fire main water, special alarms for crews' quarters, and arrangement of communication and alarms systems to avoid spaces of high fire risk.

At the conclusion of the special session, the Maritime Safety Committee was of unanimous agreement that the fire safety measures in the proposed amendments were so vital to safety of life at sea that contracting governments should not await their formal entry into force but should act to put them into effect to the maximum extent as soon as possible.

The U.S. delegation also proposed a requirement that all future passenger vessels be of Method I Construction. Of the three presently accepted methods of construction, only Method I restricts the use of combustible material and requires partitioning by incombustible barriers. All U.S. passenger vessels are currently built to this standard. Method II and Method III constructions require sprinkler and detection systems, respectively but do not limit the use of combustible materials.

The Method I proposal was forwarded to the IMCO Subcommittee on Fire Protection to recommend a single method using the best points of all methods of construction while stressing the maximum use of incombustible materials with appropriate use of sprinkler and detection systems. The Subcommittee will also consider and recommend requirements for crew training in firefighting. These two studies are to be completed by December 1966 in time for IMCO Assembly action at its next regular session.

Copies of the final amendments recommended for adoption at the 13th Session of the IMCO Maritime Safety Committee are available upon request from Commandant (MIA), U.S. Coast Guard Headquarters, 1300 E Street NW., Washington, D.C., 20226.

AMOCO DELAWARE *WINS SAFETY HONORS. The Ship Safety Achievement Award, sponsored by the American Merchant Marine Institute and the Marine Section, National Safety Council, for tank vessels is presented to S.S.* Amoco Delaware. *The tanker rescued 12 men from 2 skiffs and a partly-inflated rubber raft in the stormy Straits of Florida, December 28, 1965, after their yacht, the* Marana, *had gone down. Receiving the award is Amoco's Vice President, Capt. C. D. Phillips (far right). Others in photo, left to right, are Ralph E. Casey, President, American Merchant Marine Institute; Capt. W. S. Doe, Chief, Merchant Marine Safety Division, 3d Coast Guard District, who made the formal presentation; and Wainwright Dawson, Safety Engineer, Bethlehem Steel Corp., and General Chairman, Marine Section, National Safety Council.*

MERCHANT FLEET UP

There were 1,012 vessels of 1,000 gross tons and over in the active oceangoing U.S. merchant fleet on May 1, 1966, 3 more than the number active on April 1, according to the most recent Merchant Marine Data Sheet released by the Maritime Administration, U.S. Department of Commerce.

nautical queries

DECK

Q. Running coastwise in hazy weather, it clears up just before you pass a lighthouse abeam. Ship's speed is 15 knots and the lighthouse was abeam at 1015 and bore four points abaft the beam at 1037. Required: Distance off the lighthouse when abeam. Distance off beam=5.5 miles.

A. 4 point bearing. 22-minute run at 15 knots=5.5 miles run and off abeam. Distance abeam=5.5 miles.

Q. A Vessel on course 170°, speed by revolutions 16 knots, encounters a current setting S x E at the rate of 2.5 knots. At 0440 a light bore 215° and at 0523 the same light bore 260°. Required: The distance off the light when abeam.

A. Bearings 45° and 90° relative.

Ship's speed by revolutions	16 knots
current	+ 2.5 knots
Actual speed over ground=	18.5 knots

0523
0440

43 min. run at 18.5 knots=13.25 miles off abeam

13.25 miles off abeam

Q. What are the usual causes of faulty operation of the thermal-pneumatic feedwater regulators?

A. 1. Sticking of the feedwater regulator valve due to the presence of scale or overtightening of the stem packing.

2. Improper lagging, or painting of the control element on the steam drum.

3. Unsteady or improper feed pressure.

4. Presence of dirt or other foreign matter in the actuating air lines.

5. Leakage of the diaphragm or bellows at the feedwater regulating valve or the steam control valve.

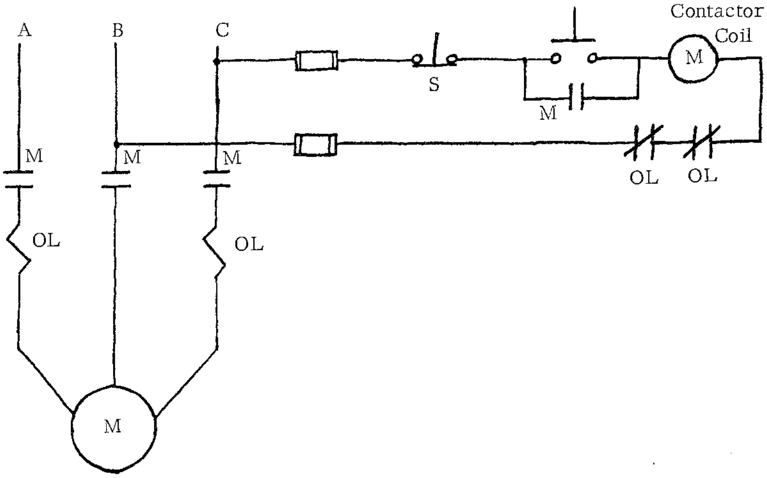
Q. Spaces provided for ship's stores of meat or fish should be maintained at a temp of not more than:

(a) Minus 12° F to minus 18° F
(b) Minus 5° F to minus 10° F
(c) Minus 5° F to plus 5° F
(d) Plus 5° F to plus 10° F
(e) Plus 12° F to plus 18° F

A. (e) Plus 12° F to plus 18° F

ENGINE

A.C. CONTROLLER



Q. The above controller provides the associated motor with the following protection:

(a) Short-circuit protection.
(b) Low-voltage release protection.
(c) Low-voltage protection.
(d) Overspeed protection.

A. (c) Low-voltage protection.

Q. The normally closed contact labeled "S" is used to:

(a) Start the motor.
(b) Short out the overload contacts.
(c) Stop the motor.
(d) Reverse the motor.

A. (c) Stop the motor.

Q. The above controller is used in a:

(a) Three phase, four-wire system.
(b) Two-phase system.
(c) Single phase, three-wire system.
(d) Three phase, three-wire system.

A. (d) Three phase, three-wire system.

Q. What is the general construction of most steam strainers for turbines? What is their function?

A. Steam strainers are provided in the admission passages of most steam turbines. They are usually located so that the steam is strained before it passes the governor valve. This is a precaution to prevent particles of scale from the pipe and other foreign matter from getting under the governor valve and preventing its shutting. Strainers are commonly constructed of corrosion resisting steelplate with drilled perforations or corrosion-resisting steel wire interwoven to form a screen, with openings sufficiently large to allow the necessary flow of steam but small enough to keep out any solid particle, including water, which would damage the turbine. The total area of the holes is generally made much larger than that of the rest of the preceding and following passages so that there will not be much friction in the strainer.

The *Proceedings* does not normally reprint Federal Register material in toto because of space limitations. Rather, as a public service, mention is made on this page of those Federal Register items published during the month that have a direct effect on merchant marine safety. Then, should one wish to read the regulation in its official presentation, he must purchase the applicable Federal Register from the Superintendent of Documents. Always give the date of the Federal Register when ordering. This date can be found in the *Proceedings* coverage of the items. See instructions in publications panel inside back cover.

CHLORINE BARGE AMENDMENTS SET

For a number of years the Coast Guard has considered problems with respect to the transportation of various dangerous cargoes in bulk in open hopper type barges. This study was started because of a number of marine casualties involving open hopper type barges which sank as a result of swamping or diving. Initial emergency operating requirements were placed in effect on March 1, 1963, as 46 CFR 98.03–10. Following this, and in conjunction with the Chemical Transportation Advisory Panel to the Merchant Marine Council, new hull construction requirements for barges were developed and published effective on July 1, 1964. Generally, the revised requirements were directed towards improving resistance to damage or sinking and barges constructed in accordance with these requirements in 46 CFR 98.03 have performed satisfactorily. In the establishment of requirements for new barge hull construction an exemption permitted existing barges to carry liquid chlorine in bulk. Recent casualties involving open hopper type barges transporting liquid chlorine in bulk indicate a serious hazard to the public which cannot be allowed to continue until such barges become unserviceable. After the MTC 602 sank and was later successfully recovered, the Coast Guard held informal meetings with representatives of chlorine barge owners or operators, the Chlorine Institute, the Chemical Transportation Advisory Panel, and representatives of the Western Rivers Panel where the desired changes in the regulations were considered.

The changes to 46 CFR 98.03–5, regarding effective dates for certain requirements, remove the exemption from construction requirements for chlorine barges built prior to July 1, 1964, and establish alternate and termination dates for conversion. Existing barges constructed or converted prior to July 1, 1964, which do not already meet the requirements for a Type I barge hull shall be modified to conform to the Type I requirements of 46 CFR 98.03–15, 98.03–20, 98.03–25 and 98.03–30 prior to January 1, 1968. Alternately, where such conversion is not reasonable or practicable and the barge is operated and marked in accordance with the provisions of 46 CFR 98.03–10 (b)(1) and (c), modification in conformance with the requirements of 46 CFR 98.03–15(b)(1), 98.03–20(b) (1) and (4), and 98.03–25(c) shall be completed prior to January 1, 1968. Design proposals and schedules for conversion or modification shall be submitted by the owners prior to July 1, 1966. Where it is determined that modifications are not feasible and the owner states an intention to construct a replacement barge, or where complicating circumstances arise and the owners make specific application for relief, the existing barge may be retained in service until replaced or modified but not later than June 30, 1968. In effect, the schedule will require owners to submit within 3 months, i.e., before July 1, 1966, design proposals and conversion schedules of existing barges required to be modified. An additional 18 months or until January 1, 1968, is provided for the completion of the conversion of such barges. Where owners stating intent to replace such barges rather than to convert them, the termination date for the use of such barges is extended an additional 6 months or until June 30, 1968.

Changes and additions to 46 CFR 98.03–7, 98.03–20, and 98.03–25 are set forth in the Federal Register of April 16, 1966. They revise the construction requirements for existing open hopper type barges transporting liquid chlorine in bulk and this should substantially improve the resistance of such barges to sinking by holing or swamping.

A change designated 46 CFR 98.03–7 regarding barge hull classification, provides a special classification for existing barges converted under alternate provisions in 46 CFR Subpart 98.03. A change to 46 CFR 98.03–15, regarding rakes and coamings, provides alternate requirements for conversion where modification to the bow rake is not feasible. The increased coaming requirements compensate for the reduced reserved buoyancy permitted by alternate subdivision requirements. A change to 46 CFR 98.03–20, regarding subdivision and stability, provides alternate requirements for conversion where full Type I requirements cannot be attained. The reduced requirements are supplemented by the operating requirements of § 98.03–10(b)(1) and the coaming requirements of § 98.03–15 (c). A change to 46 CFR 98.03–25 regarding hull structure provides alternate requirements for demonstrating adequacy of longitudinal strength. Simplified calculations are accepted inasmuch as a grounding study is not considered necessary for tank saddle analysis. Although this requirement is not as severe as that of § 98.03–25(b)(2) which would normally be applied, it is considered adequate under the operating restriction of § 98.03–10 (b)(1).

The Coast Guard finds that there is an urgent and immediate need for positive action to require modification of those chlorine barges built prior to July 1, 1964, which are not in full compliance with Type I barge hull requirements in 46 CFR Subpart 98.03; and that it is in the public interest to require changes so that the resistance of such barges to sinking by holing or swamping will be further minimized. These amendments may be found in the Federal Register of April 16, 1966.

161.009 CELLS, DRY (FOR FLASHLIGHTS)

The following is the current list of dry cell batteries that have been found to comply with paragraph 161.008–5(d) of U.S. Coast Guard Specifications Subpart 161.008 for Flashlights, Electric, Hand, dated January 11, 1950. These batteries may be used for lifeboat and liferaft flashlights:

BRIGHT STAR 10M	Bright Star Industries.
EVEREADY E95	Union Carbide Consumer Products Co.
EVEREADY No. 950	Do.
EVEREADY No. D99	Do.
MARATHON 121	Marathon Battery Co.
RAY-O-VAC No. 2LP	Ray-O-Vac Co.

STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from May 1 to May 31, 1966, 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

DuBois Chemicals, Broadway at Seventh, Cincinnati, Ohio: Certificate No. 506, dated May 2, 1966, WAX-AWAY; Certificate No. 509, dated May 2, 1966, AERO-CARB.

Apollo Chemical Corp., 250 Delawanna Ave., Clifton, N.J., 07014; Certificate No. 665, dated May 3, 1966, DIESELEX CC-2 or APOLLO CC-2 or APOLLO DIESEL FUEL COMBUSTION IMPROVER.

Olympic Mfg. Co., 670 Trabert Ave. NW., Atlanta, Ga., 30318; Certificate No. 666, dated May 12, 1966, WH-25 Concentrate.

Hi-Brett Chemical Co., 1697 Elizabeth Ave., Rahway, N.J.; Certificate No. 667, dated May 12, 1966, H. B. Cold Wash.

Fine Organics, Inc., 205 Main St., Lodi, N.J., 07644; Certificate No. 668, dated May 27, 1966, F.O. 365-A FINOR MULSE.

AFFIDAVITS

The following affidavits were accepted during the period from March 15, 1966, to May 15, 1966:

West Jersey Machine & Mfg., P.O. Box 99, Williamsport, N.J., 08094, FLANGES AND FORGINGS.

Willard Bronze Co., Inc., 1253 Knowlton St., Cincinnati, Ohio, 45223, CASTINGS.[1]

Elkhart Products Corp., 1255 Oak St., P.O. Box 1008, Elkhart, Ind., 46515, FITTINGS.

General Dynamics, Electric Boat Division, Eastern Point Rd., Groton, Conn., 06340, FITTINGS, FLANGES, AND CASTINGS.

AllenAir Corp., P.O. Box 350, 225 East 2d St., Mineola, N.Y., FITTINGS.[2]

Cabot Piping Systems, 30th and Magazine Sts., Louisville, Ky., 40211, PIPE AND TUBING.[3]

Versa Products, 150 Coolidge Ave., Englewood, N.J., VALVES.[4]

Standard Brass & Mfg. Co., P.O. Box 969, Port Arthur, Texas, 77641, VALVES, FITTINGS, FLANGES & CASTINGS.[5]

Maxon Premix Burner Co., Inc., P.O. Box 2068, Muncie, Ind., VALVES.

AllenAir Corp., P.O. Box 350, 255 East 2d St., Mineola, N.Y., FITTINGS.[6]

[1] ASTM B-143 castings only.
[2] Type AV cylinders only.
[3] Affidavit acceptance includes PVC piping.
[4] Affidavit acceptance covers SV-*-2128 valves only.
[5] Omitted from August 3, 1964 edition of CG-190.
[6] Change footnote to read as follows:
Acceptance covers pneumatic cylinders sizes ⅞'', 1⅛'', 1½'', 2'', 2½'', 3'', and 4'' for a maximum pressure of 150 p.s.i.

LETHAL GASES

(*Continued from page 145*)

from it. The system probably began operating when power was restored to the vessel before midnight the previous evening; but it is felt that the gas was not detected during the 0230 check of the bridge since the gas, being heavier than air, had settled in and around the cargo. The gas was then probably stirred during exhausting procedures.

The casualty can clearly be attributed to a breakdown of good judgment. There should have been closer supervision by master and crew while the ship was being sealed and during reactivation to insure that all systems were closed. The fumigating company should have more fully informed and warned the master of the extreme dangers of Methyl Bromide, and the master should probably have kept the crew ashore as an extra precautionary measure until it could be assured that the entire ship was free of gas.

INDICATORS

(*Continued from page 142*)

(14) Don't adjust your voltage when sample is in combustion chamber, unless it is below correct setting.

Know How To Use It

Always read the instruction book which accompanies each instrument. You will find complete instructions, possible troubles and remedies, and an exploded view of all parts with their stock number.

This, then, is a general outline of the types of instruments we use in marine work, the way in which they work, and the basic care necessary to keep them operational.

REVISED CHEMICAL DATA GUIDE AVAILABLE

An enlarged and revised edition of CG-388, "Chemical Data Guide for Bulk Shipment by Water," has been completed by the Chemical Engineering Branch of Coast Guard Headquarters. The revised Data Guide will replace the June 1, 1965, pilot edition.

The Data Guide is primarily intended to provide existing information in a convenient form for emergency use. Covered in the 142-page volume are 127 chemicals ranging from acetaldehyde to p-xylene. Each commodity is described by chemical formula and physical properties with additional data given on fire and explosion hazards and health hazards, including exposure symptoms and first-aid procedures. It also describes the actions to be taken should a particular chemical leak or be spilled. Special regulations (if any) applicable to a particular cargo are referenced.

The Data Guide may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, price $1.25.

NEW COMMANDANT

(*Continued from page 139*)

refugees of Spain during their civil war.

During World War II he commanded an escort division, escorting convoys from the United States to Mediterranean ports. In 1944 he became the first skipper of the icebreaker *Mackinaw* on the Great Lakes.

In 1955 he was graduated from the National War College in Washington. A year later he was promoted to the rank of rear admiral.

Admiral Roland served as Commander of the 1st Coast Guard District with headquarters at Boston and later as Commander of the Eastern Area with offices at New York City.

He became Assistant Commandant of the Coast Guard in February 1962. He was appointed to a 4-year term as Commandant effective June 1, 1962.

His 4 years as Commandant have been marked by a modernization program of the Service's ships and aircraft.

Admiral Roland is married to the former Jane Dare Fitch of New London, Conn. They have two sons, William F. and Edwin, Jr., and a daughter, Janet D. Roland. Both sons are graduates of the Coast Guard Academy and are now on active duty with the Coast Guard.

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, 1966 are now available from the Superintendent of Documents, price $2.50.

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, 2–5–66, 3–15–66.
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 (1–3–66).
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, 2–5–66, 3–15–66.
190	Equipment lists (8–3–64). F.R. 10–21–64, 10–27–64, 3–2–65, 3–26–65, 4–21–65, 5–26–65, 7–10–65, 8–4–65, 10–22–65, 10–27–65, 1–27–66, 2–2–66, 2–5–66, 2–10–66, 3–15–66, 3–24–66, 4–15–66.
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel (2–1–65). F.R. 2–13–65, 8–21–65, 3–17–66.
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, 3–22–66.
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 (1–3–66). F.R. 4–16–66.
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). F.R. 3–10–66.
268	Rules and Regulations for Manning of Vessels (2–1–63). F.R. 2–13–65, 8–21–65.
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 (4–1–66).
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 APRIL 1966

The following have been modified by Federal Registers:
CG–190, Federal Register, April 15, 1966.
CG–257, Federal Register, April 16, 1966.

Changes published during May 1966 (none)

U.S. GOVERNMENT PRINTING OFFICE:1966

Socony-Bil says:
PETROLEUM PRODUCTS
HANDLE WITH CARE
by Roesler
GROUND SHIP TO DOCK PIPELINE!
STATIC ELECTRICITY CAN IGNITE FLAMMABLE VAPORS PRESENT WHEN HOSE CONNECTIONS ARE MADE TO DOCK PIPELINES. ELIMINATE THIS HAZARD. THE SHIP SHOULD BE GROUNDED (BONDED) TO PIPELINE BEFORE HOSE CONNECTION IS MADE.
Dangerous Gases
YOU CAN'T SEE, FEEL OR SOMETIMES SMELL THIS ENEMY! FOR SAFETY, USE A GAS INDICATOR TO DETECT DANGEROUS HYDROCARBON VAPORS WHICH ARE PRESENT IN CRUDES & MOTOR FUELS.
While loading, Discharging, Ballasting and Washing Tanks:
MAKE NO REPAIRS IN OR NEAR CARGO TANKS. – USE NO ELECTRIC TOOLS ON DECK, NEAR TANKS OR IN PUMP ROOM. – DO NOT REPAIR OR ALTER ELECTRICAL INSTALLATIONS IN VICINITY. – MAKE NO DECK REPAIRS UNLESS AT A SAFE DISTANCE AND PROPERLY SAFEGUARDED.
Watch for Stack Sparks!
HALT CARGO HANDLING AT ONCE IF SPARKS COME FROM STACK OF VESSEL OR FROM THOSE NEARBY. REMOVE THIS DANGER BEFORE RESUMING OPERATIONS.
Play Safe: – while Cargo Handling!
✓ STOP CARGO HANDLING DURING ELECTRICAL STORMS.
✓ USE ONLY APPROVED FLASH LIGHTS AND PORTABLE LIGHTS.
✓ DO NOT USE RADIO OR WORK ON CIRCUITS OR BATTERIES.
✓ CLEAN UP SPILLS IMMEDIATELY.
GASO.
KERO
Cargo Contamination can mean Explosion!
LOAD CARGO PROPERLY. MAINTAIN TANKS, LINES & PUMPS IN CLEAN CONDITION. BE CERTAIN HOSE CONNECTIONS TO SHORE PIPE-LINES ARE CORRECT FOR EACH TYPE AND GRADE OF PETROLEUM PRODUCT.