



COAST GUARD



PROCEEDINGS OF THE MERCHANT MARINE COUNCIL

Programs for Analyzing and Reducing the Influence of Personnel Failure on Marine Casualties . . .

SS *Glomar Grand Isle* Report . . .

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COVERS

FRONT COVER: The 37,750-deadweight-ton tanker SS *Spirit of Liberty* underway. Launched just last year at Sparrows Point, the vessel can operate at a sea speed of 16 knots. She is available for worldwide service of the MSTs under the terms of a long period charter arrangement. *Courtesy Bethlehem Steel Corp.*

BACK COVER: Safety cartoon by G. Seal, *Pacific Maritime Association.*

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PROCEEDINGS

OF THE

MERCHANT MARINE COUNCIL

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The Merchant Marine Council of The United States Coast Guard

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PUBLIC HEARING

The Merchant Marine Council on March 24, 1969, held a public hearing concerning proposed regulations and amendments to existing regulations authorized by the navigation and vessel inspection laws. The first nine items which were proposed were designated items PH 1-69 to PH 9-69, inclusive, and were set forth in one volume of the Merchant Marine Council Public Hearing Agenda, CG-249. A summary of these proposals was also published in the Federal Register of February 7, 1969, 34 F.R. 1831-1836, and described in the February issue of the "Proceedings." The last item, PH 10-69, was published in the Federal Register of February 15, 1969, 34 F.R. 2254-2255.

The proposed regulations concerned the following: Item PH 1-69 proposed to establish a subchapter O to regulate on unmanned tank barges the transportation of all bulk dangerous cargoes having hazards other than, or in addition to, the conventional flammability and combustibility of petroleum products. Item PH 2-69 proposed miscellaneous amendments to part 146 of subchapter N (Dangerous Cargoes) to clarify the application of the regulations and to reflect current terminology. Item PH 3-69 proposed various amendments to subchapter D (Tank Vessels) and subchapter J (Electrical Engineering), generally concerning (3a) deck foam firefighting systems; (3b) segregation of cargo; (3c) fire and lifeboat drills; (3d) the installation of sacrificial anodes; and (3e) the installation

of explosion-proof lights in tank vessels. Item PH 4-69 (4a) proposed changes in the requirements for waterlights in subchapters D, H (Passenger Vessels), I (Cargo and Miscellaneous Vessels), Q (Specifications), R (Nautical Schools), T (Small Passenger Vessels (under 100 gross tons)), and U (Oceanographic Vessels) of title 46, and subchapter N (Artificial Islands and Fixed Structures on the Outer Continental Shelf) of title 33; (4b) proposed a revision in the specifications for structural insulation and bulkhead panels in subchapter Q; and (4c) proposed amendments to the specification for floating orange smoke distress signals, also in subchapter Q. Item PH 5-69 proposed changes to subchapter L (Security of Waterfront Facilities), of title 33 concerning handling of explosives or other dangerous cargoes within or contiguous to waterfront facilities. Item PH 6-69 (6a) proposed changes to subchapters D, H, I, T, and U for the purpose of making them compatible with the new part 42 of subchapter E (Load Lines); and (6b) proposed additions to the freeboard tables for Great Lakes vessels in subchapter E to duplicate the type B table of the International Load Line Convention 1966. Item 7-69 (7a) proposed to implement the objectives of Public Law 89-99 (Oceanographic Research Vessels), with respect to the licensed officers and unlicensed crew members employed on board oceanographic research vessels; and (7b) proposed to amend subchapter R re-

garding manning and persons allowed to be carried on nautical school ships. Item 8-69 (8a) proposed to amend subchapters D, I, and U to require at least two emergency fireman's outfits on board applicable vessels; and (8b) proposed changes to subchapters D, H, I and N to revise the maximum acceptable carbon monoxide concentration for holds and intermediate decks where persons work. Item PH 9-69 (9a) proposed changes to subchapter D of title 33 to permit barges operating upon international and inland waters to display lights and shapes required by International Rule 5 (33 U.S.C. 1065); and (9b) proposed amendments to the performance requirements and light intensity standards in subchapters C (Uninspected Vessels), and T (Small Passenger Vessel Regulations), to establish a reasonable time for compliance by vessels, including motorboats, carrying navigation lights. Item PH 10-69 proposed revised load line assignment fees.

The Merchant Marine Council in Executive Session considered the 251 written comments as well as the oral comments made at the Public Hearing on March 24. The Council has recommended to the Commandant the approval without change of items 3a, 3b, 3c, 4c, 5, 9, and 10 and the approval with modifications of items 2, 3d, 3e, 4a, 4b, 6, and 8. These items will be published in the Federal Register in the near future. Final action on items 1 and 7 is being withheld pending further study. ♦

PROGRAMS FOR ANALYZING INFLUENCE OF PERSONNEL CASUALTIES

IT IS SAID that the effective regulation of industry by a government agency depends in large part upon obedience to the unenforceable. All the legislative and regulatory power of government is of little note if there is no personal commitment by individuals to heed safety programs or laws. It is not enough that ships are fitted with the most modern of safety devices and that individuals utilizing these devices show by examination or demonstration an appreciation and understanding of the capabilities of the equipment. Ultimately, whether or not technological advances improve the safety situation on a particular ship or detract from it turns on whether or not the instruments provided are utilized properly.

As the principal Federal agency charged with the duty of promoting safety of life and property at sea, the Coast Guard is continually examining the need for new regulations or legislation to meet developing marine transportation technology or to fill existing deficiencies in marine safety. Coast Guard sponsorship of legislation with regard to radiotelephone requirements, unification of Rules of the

From an address before the 14th Annual Tanker Conference, American Petroleum Institute, Pocono Manor Inn, Pocono Manor, Pa., May 13, 1969.

Road, and licensing and inspection of towboats is well known. Our efforts to reduce collisions by use of sealanes or to require radar observer expertise in renewal of licenses are further examples of our efforts to reduce casualties through reduction of personnel failure. However, as I have pointed out, the role of the Coast Guard is not the entire picture, and as part of this article I would like to highlight the programs which the maritime industry is or ought to be implementing in fulfilling its responsibility for reducing the influence of personnel failure.

The Coast Guard is charged with the duty of investigating marine casualties in order to determine cause and the steps which can be taken to prevent future recurrence. These causes are analyzed and presented yearly as a statistical summary of marine casualties for all types of commercial vessels. Casualty statistics for

fiscal year 1968 reveal that of the 161 collision and grounding type of marine casualties involving tankers, 79 were primarily caused by the person in charge on board the tanker. This would indicate a fertile field for study and action looking to reduction of these type accidents.

My approach will be to highlight some of the significant marine casualties which have occurred recently and analyze them in order to identify the particular personnel failure which contributed to each occurrence. In the process, a close examination of the elements and boundaries of personnel failure will also be made. This will serve as a prelude to further discussion of the programs being undertaken in order to eliminate or neutralize the influence of personnel failure.

ALVA CAPE LESSONS

As a starting point, let us look at some casualties of the recent past which indicate personnel fault as the primary cause. In June 1966, New York harbor was wracked by an explosion and fire following a collision

AND REDUCING THE FAILURE ON MARINE

Captain Winford W. Barrow, USCG
Chief, Merchant Vessel Inspection Division

of the tankers SS *Texaco Massachusetts* and SS *Alva Cape*.¹ The record of the Marine Board of Investigation indicates that the casualty occurred on a clear day with both vessels in sight of each other in a crossing situation with the *Alva Cape* the burdened vessel on the *Texaco Massachusetts*' port bow. The investigation revealed that there was no mechanical failure or any other special circumstances to justify lack of compliance with the rules of the road. The resultant explosion and fire caused the death of 33 persons. The dramatic sequence of pictures taken a few minutes after the collision reveals the terrible consequences of the personnel fault that the Marine Board concluded was the primary cause of the casualty.

The fire was extinguished but the tragedy of the *Alva Cape* was not fully spent.² The vessel was towed to lower New York Bay where salvage efforts were commenced to remove

the remaining naphtha cargo. In the course of discharge operations the vessel was wracked by another violent explosion and fire resulting in the death of four members of the salvage crew. Personnel fault and human error again played its part. The investigating officer determined the cause of the casualty to be an improper and inadequate attempt to inert the cargo tanks using carbon dioxide gas. If the inerting process had been under the supervision of a certified marine chemist, personnel could have been warned of the hazardous possibility of a static spark. This warning was conveyed to the purchaser of the carbon dioxide gas but unfortunately was never relayed and translated into action to benefit those completing the operation and in most need.

Before dealing with the particular fault involved in these casualties, a closer examination of the concept of personnel failure is warranted. Analysis will reveal that it manifests itself in one of several ways in a particular casualty. The possibilities include: (1) Lack of knowledge of the proper steps to be taken in order to avoid

the casualty; (2) lack of experience so that the hazardous situation is not recognized as developing; (3) the premeditated taking of risk without having at hand the basic factors to make an intelligent judgment of the risks and hazards involved; (4) lack of training or understanding of a new procedure or a new device which requires a modification to the old standard of judgment; and (5) the willful violation of a statute or a regulation or rule of operating procedure which has been established by custom, law or regulation and which the person involved is duty bound to obey unless special circumstances or a special situation warrant a departure.

In the *Alva Cape-Texaco Massachusetts* collision, there was no lack of experience or technical knowledge on the part of the person navigating the vessels nor were the hazards of taking a calculated risk obscured. More training, experience, or knowledge would not have substantially altered the events of that tragedy. The case can be reduced to the need of finding an effective way to bring about a course of conduct that is in

¹The National Transportation Safety Board and Commandant Actions on this casualty may be found in the November 1967 "Proceedings."

²A complete report of this incident may be found in the "Proceedings" for June 1967.



Photos courtesy Humble Oil and Refining Co.

In the age of the supertanker, thorough personnel training is more vital than ever. To prepare men for handling the big ships, the Esso Marine Research and Training Center near Grenoble, France provides scale-model tankers in a variety of navigational problems. The largest of the models is the Esso Brittany, a 1/25th-scale copy of the 191,000-deadweight ton Esso Malaysia. The miniature vessel is 42.5 feet long, has a beam of 6.5 feet, draws almost 2.5 feet, weighs close to 14 tons, and will accommodate three men. The model performs exactly like its mammoth counterpart; its electric drive motors deliver the scale equivalent power of the big ship's engines. Electrical relays simulate time lags in engine and rudder orders.

compliance with accepted safety practices. Penalties or proceedings based on failure to obey the rules of the road are of limited value and reach only those cases where a casualty has occurred. Safety records prove that accidents cannot be stopped by just taking action on them alone. Beyond each accident there is an enormous number of incidents containing the ingredients of disaster but that yield only minor consequences or an unreported near miss. If elimination of accidents is the purpose of investigations, the identification of primary cause must relate to an aspect of the accident that is most susceptible to remedial action. The

Alva Cape-Texaco Massachusetts collision must be viewed as an example of the failure by persons involved to adequately appreciate the fiery and deadly consequences that were inherent in the risks that were taken.

The Coast Guard, for its part, publishes the results of its investigations and thus disseminates to persons concerned the losses and suffering that follow such imprudent conduct. Efforts must be taken by others to insure that the message of disaster is so impressed upon persons that in future similar situations any risk will be avoided. Many would say this view takes no account that men are, by

nature, imperfect and we cannot hope to transform them into ideals of prudence. At the point where this view assumes validity, we should focus our attention on those methods and devices which can overcome or bypass man's imperfection. I am referring to the aspect of the *Alva Cape-Texaco Massachusetts* collision which deals with the absence of bridge-radiotelephone communication between the vessels. Any doubt by one vessel concerning the course or intention of the other vessel could have been readily resolved by its presence and use on both vessels on an established frequency. The legislative proposal requiring this anticollision aid has yet to be enacted, but in those areas where it has been used, even absent a statutory requirement, it has provided a significant contribution to safety.

TORREY CANYON

A casualty which did not occur within the investigative jurisdiction of the Coast Guard, but which has not escaped attention by any commentator on marine safety since its occurrence, is that of the *Torrey Canyon* grounding off the English coast near Land's End in March 1967. The *Torrey Canyon*, at the time of her casualty, was one of the largest vessels in the world drawing 54 feet aft and 51 feet 3 inches forward and carrying 119,328 tons of crude oil. The crisis generated by the loss of her cargo and the contamination of the sea and adjacent beaches is common knowledge. The vessel and cargo loss involved, coupled with the fantastic expense of efforts to protect and save the beaches of both England and France have made this casualty one of the greatest monetary losses in the history of maritime commerce.

The Board of Investigation appointed by the Republic of Liberia concluded there was no mechanical failure or defect aboard the *Torrey Canyon* of any kind. The cause was attributed solely to the human error of the ship's master whom the report charged with imprudence and neg-

ligence in several respects, including the following:

(1) His decision to pass to the east of the Scilly Islands instead of to the west as originally intended exposed the vessel to unnecessary risk which could easily have been avoided.

(2) His attempt to pass between Seven Stones and St. Martin's Head rather than between Seven Stones Light Vessel and Land's End contrary to advice published in both Channel Pilot and Sailing Directions.

(3) His failure to have the vessel in hand steering with a helmsman at the wheel while transiting confined waters with other vessels and fish nets in the vicinity.

(4) His failure to reduce speed of the vessel at any time prior to stranding, especially when he realized he was nearer to the Seven Stones than he had previously thought, and when an indicated course change was prevented by the presence of a fishing vessel on his port side.

(5) His failure to have established any regular or routine practice aboard his vessel in connection with the use of the automatic steering system and specifically with regard to the operation of the selector level controlling the steering wheel.

One year after the loss of the *Torrey Canyon*, a similar disaster occurred when the SS *Ocean Eagle* broke in two at the entrance to San Juan Harbor.³ The Coast Guard Marine Board of Investigation concluded that the cause of the casualty was faulty navigation, in that the vessel was not conned on the Bay Channel range and was navigated to the west of the western edge of the channel extension. The breaking of the vessel was due to overloading, improper loading and grounding, and extensive pollution resulted.

Any post mortem on the *Torrey Canyon* and *Ocean Eagle* incidents must consider the question of whether



The two-man Esso Berlin is 26 feet in length and is a 1/25th scale model of its 38,000 ton namesake. The training center has facilities in the same 1 to 25 scale as the models. The layout includes a bend in the Suez Canal, two fixed bow mooring towers, a floating mooring buoy, two conventional buoyed sea berths, and lighted buoys to make channels.

vessels are being navigated properly and whether the officers who command ocean carriers are properly trained, especially in light of the potential for losses that these casualties pose and which are enhanced by the specter of more and more giant tankers plying the seas. The dangers posed are unique in that the traditional interest of one nation over its own vessels and territorial waters is now expanded to all vessels navigating any waters that may carry to beaches the gummy aftermath of a casualty. One consequence of this expanded interest has been reflected in a proliferation of recommended traffic separation systems through heavily trafficked areas of the earth's oceans.

TRAINING NEEDED

Three months after the *Torrey Canyon*, a special session of the Sub-

committee on Safety of Navigation of the Maritime Safety Committee of the Intergovernmental Maritime Consultative Organization was convened in London to study means to obviate or diminish the possibility of similar disaster. Further sessions of the organization produced a veritable torrent of proposals including the mandatory fitting of ships of certain sizes with radar, gyro compass, echo sounding and radio direction finder devices. Another proposal would have established an international certificate of competency to indicate all ship's officers had received training equal to or greater than minimum internationally accepted standards. More significant to our present discussion of international marine navigation is the innovation of the radar simulator as a training aid. Recently a joint committee of IMCO and the International Labor Organization submitted

³ See the May 1969 issue of this magazine for a complete report on this casualty.

an updated radar simulator course syllabus to the Maritime Safety Committee. The committee recommended that the syllabus, if approved, should be sent to member states of IMCO and ILO with a request that it be given wide distribution to all bodies and institutions concerned. The advantages of the simulator training are manifold. It offers the opportunity to achieve and maintain proficiency in radar-aided ship-handling techniques under all types of normal and emergency conditions. Typical harbor problems with several maneuverable ship targets, locatable buoys, bridges, land towers, and shoreline can all be simulated and controlled by the instructor. This realistic simulation affords opportunity to gain experience within a short time which would take years to obtain in actual service on a ship's bridge.

From a pollution standpoint, it is equally important to prevent tank vessels from stranding as well as from suffering a collision, as the *Torrey Canyon* and *Ocean Eagle* incidents dramatically demonstrate. Another aspect of training, the impetus of which is the international concern for the hazards posed by more and more large tankers, are programs to provide ship handling expertise for officers manning those supertankers. The increased draft, greater displacement and momentum, increased stopping distance all present problems requiring specialized training. The American company, Standard Oil of New Jersey, was responsible for establishing the first training basin to teach shiphandling techniques for supertankers. Using models carefully built to perform exactly like the big ships, master mariners go through a 2-week course at Grenoble, France, where they encounter the hazards of the world's seas and anchorages which they will have to master when handling supertankers.

The training consists of handling scaled-down ships' models, wherein the student's height of eye is relatively

the same as if he were on the actual ship's bridge. The model vessels' electric drive motors produce the scale equivalent power and maneuverability as the big ships' engines. Time lag to reverse engines or increase or reduce speed and rudder responses are all designed to give shipmasters as much knowledge as possible about proper handling before they ever set foot on the actual ships. Only the consequences of a mistake are not simulated such as in the parting of the model's anchor chain under a strain equivalent in scale to that which would snap a full-sized chain.

This aspect of training ships' masters speaks only to their level of training and experience. It introduces to them new hazards that result from developing technology and the procedures to meet and overcome them; however, if we are to realistically attempt to analyze personnel failures we should extend our inquiry to all the factors and circumstances of a case that in any way bear upon how a person governs his conduct. Decisions are never made in a vacuum but are the result of a host of influences that compositely make a particular decision an almost inevitable consequence of all factors. To illustrate, let us return to the Liberian report on the *Torrey Canyon*. Finding of fact 11 indicates that the decision of the master, at 0655 on 18 March, and 145 miles from Milford Haven, to pass east of the Scilly Islands was in part based upon the reason "* * * that he considered it important that the vessel reach Milford Haven as soon as possible. An alteration to port so as to pass to the west of the Scilly Islands would necessarily result in delay, even though slight. Assuming the ship had altered to port to pass 5 miles to westward of Bishop Rock, the voyage would have been lengthened by about 8 miles or about 29 minutes. The Master testified that he had previously been advised by the owner's agent that high water at Milford

Haven was expected at 2300 March 18 and if the ship missed that time, it would be necessary to wait another 5 days for a favorable tide enabling the deeply laden tanker to enter port." The Master also testified that he anticipated that 5 hours to lighten the vessel would still be required for its draft to clear Milford Haven.

The Board, notwithstanding this testimony, concluded that the only reason for the Master's decision was that he saw no reason for not taking that course which was in fact the more direct route to his destination. The significance of the Master's alleged concern remains, however, as a factor which must be considered in the overall picture of personnel failure. Meeting schedules is as much a part of the maritime industry as the ship and men themselves. It serves no purpose to assert that safety is more important than meeting schedules because this is simply unrealistic. Rather, economics ought to be recognized as a significant contributing influence in producing imprudent conduct that would not otherwise be undertaken. The number of cases involving collisions where one or both vessels were proceeding at excessive speed in fog are legion. Failure on your part or mine to recognize these influences that in fact bear upon men's decisions lessens the chances of correcting errors and preventing future recurrences.

COLLISION CAUSES

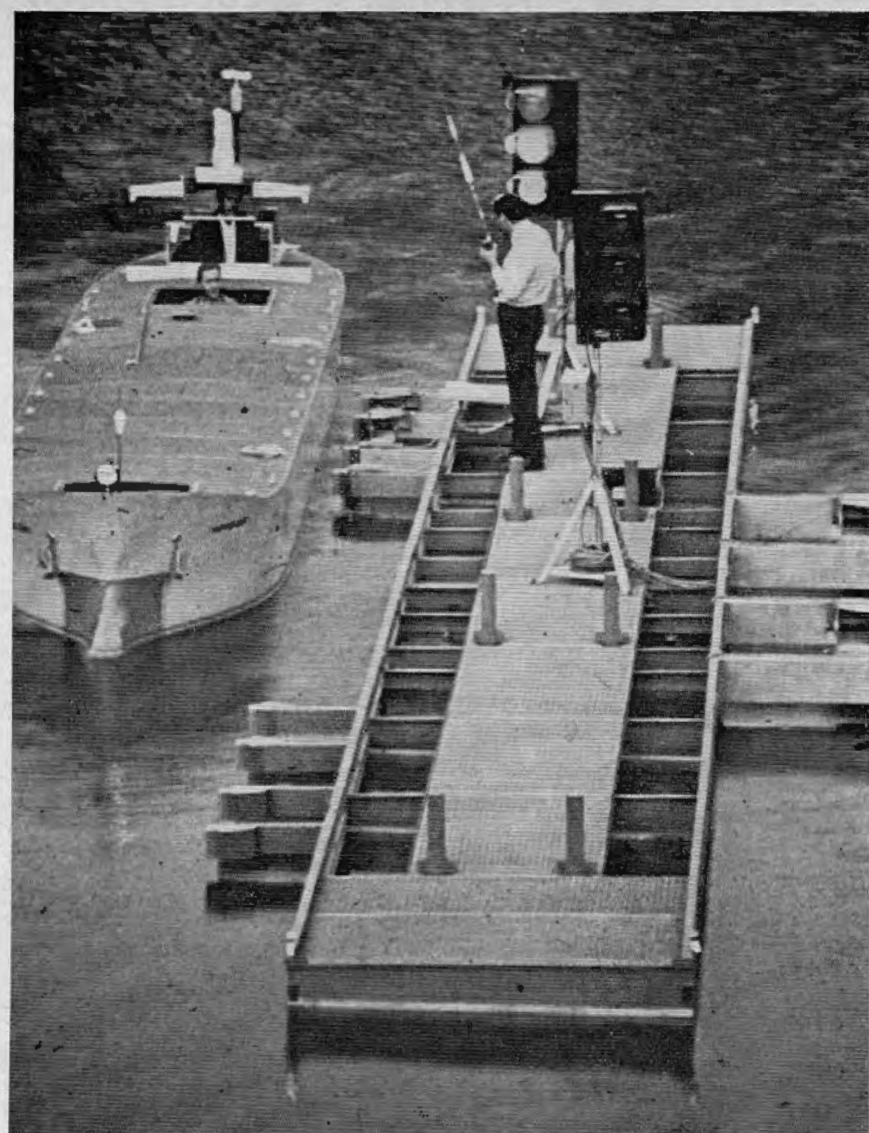
On the morning of 2 August 1965, the SS *Arizona* while traveling at 17 knots in visibility described as ranging from 0 to several hundred yards collided with an object that was not identified on radar.⁴ While damage to the *Arizona* was considered moderate, it was determined that she had collided with a 995 gross ton Japanese coastal tankship which apparently was one of a number of tar-

⁴ The full report of this casualty was published in the April 1968 "Proceedings."

gets in the area. All but one of the crew of 19 lost their lives on the Japanese vessel. The investigation concluded that neither vessel was proceeding at moderate speed considering the conditions of reduced visibility and the darkness of night in a heavily trafficked area. The Commandant in his Action made the following comments: "Reliance upon radar in periods of reduced visibility in areas of heavy traffic to the exclusion of the statutory rules of the road and Radar Annex to those rules cannot be condoned. The recommendations in the Radar Annex clearly caution the prudent mariner that the statutory requirement for proceeding at moderate speed may mean that where there are radar indications of one or more vessels in the vicinity, 'moderate speed' should be slower than a mariner without radar might consider moderate under the circumstances. The mariner who fails to properly utilize radar can expect to be held accountable for this failure in the same manner as for any other neglect or disregard of the requirements of good seamanship. This proper utilization may in certain instances call for plotting targets, analyzing the information and taking prompt, early positive action recommended in the Radar Annex to the international rules of the road."

This means that in the investigation of a radar-equipped vessel collision, the Coast Guard will more carefully and critically evaluate the use or non-use of radar as the anticollision aid for which it was primarily designed. Despite these remarks, last year's toll of serious casualties included radar associated, low visibility collisions. As in many other instances, excess speed was coupled with the failure to adequately plot the targets that appear on the radar.

It must be pointed out that in many (if not most) of the cases analyzed, there was probably insufficient personnel available on the bridge to ac-



A model tanker approaches a special pier in a docking maneuver. The traffic lights at the end of the pier indicate the relative success of the exercise. If the captain brings the model in without mishap, the lights stay off. If he should nudge the pier, the green light goes on. A damaging jolt brings the yellow light on. If the red light should go on—a rare occurrence—it means that under actual circumstances the dock would have been destroyed.

complish the necessary functions. Bridge organization for the conditions encountered was extremely informal with duties imprecisely stated or not stated at all. Why this should be the case, I have not been able to ascertain.

Specific bridge or watch organization other than requirements for statutory minimums, is an operational matter which the Coast Guard has traditionally left to owners, operators and masters. This would appear to be an

area which owners and operators should investigate carefully looking to establishment of some general parameters for guidance of Masters.

In one sense it might be said that a cause of the collision noted above was the presence of radar; partly due to improper use or improper interpretation, but also because in periods of poor visibility the radar gives the Master a false sense of security. Speed on many occasions is not reduced on the assumption that the all seeing and all knowing eye will provide complete and accurate information. Casualty statistics do not support the assumption. The ship's Master or operator whose experience judges relative movement of other vessels by sight and observation has lost a valuable part of his judgment when he exchanges direct visual observation for a dot on the radar screen. The failure to plot targets has repeatedly yielded casualties between vessels equipped with radar. The list includes collisions of the *Faros-Sharon Lee*, *Greeley Victory-Occidental Victory*, *Ohio-Washington Mail* and the *Andrea Doria-Stockholm*. I believe these casualties serve to illustrate my earlier point. Regardless of the technological advances, unless installation of equipment is accompanied by actual proper use in practice, safety devices can be a detriment to safety.

COOPERATION AND COMMUNICATION

In order to provide for proper use in practice, it is necessary that devices and products for increasing safety be accompanied by education and training. Shipboard personnel must be thoroughly familiar with operating procedures, simple maintenance, and troubleshooting on devices on which their safety is dependent. Education and training are of course cooperative efforts. In most cases, the Coast Guard requires in the form of examinations a basic knowledge of fundamentals, leaving to the shipowner or operator

training in a particular device. A shipowner or operator can assume paramount importance in the field of shipboard safety by his selection of training systems and aids. In assessing the needs of the program all aspects of company policy which impact upon the problem should be investigated at the top management level.

The idea that the scope of inquiry must be as broad as the influences which bear upon the conduct in question can be exemplified in many ways. For example, I think you will all agree that the stability of operating personnel on tankers, especially in the coastwise trade, is measurably higher than on dry cargo vessels. This has traditionally been the case and is probably due to factors such as employee benefits, company image, loyalty, and the like. This fact assumes relevance to our discussion when we correlate it with statistics prepared by the Marine Index Bureau in New York that injury and illness frequency rates for tanker personnel are also measurably lower than those for dry cargo vessels. Whether there really is a cause and effect relationship between the two pieces of data is open to discussion and perhaps should be further studied. For the moment, I consider it valuable to merely suggest the kinds of things which ought to be considered in examining personnel failures so that the most beneficial training programs and policies can be conceived and implemented.

Any discussion of safety training must take account of the problems encountered in getting through to the individual. Several independent contracting organizations have been founded on the theory that the neutrality of the teacher, who has no axe to grind, is an essential component for the evaluation of in port and underway practices. We view these evaluations as effective means of finding out the problems before attempting to formulate solutions. Rightly or wrongly, the Coast Guard, industry

management, underwriters and the like have had to face this communications barrier for years because of the position they occupy and the environment surrounding their safety pitch. The current efforts recognize that effective training means more than talking and that teaching is nothing more than helping a man learn for himself. Safety talks may feed the man information without any voluntary action on his part or even against his will, but knowledge and skill cannot be forced into his head or hands. Training, properly conceived, is merely a vehicle by which information is presented to a receptive individual so that there is an effort to learn. Once the channel of communication is opened by someone whose only vested interest is safety, the impact of the information will depend upon the manner of presentation. The use of cartoons and audio/visual devices which graphically depict principles of safety confirm that in this day and age the medium is the message.

CONCLUSION

Safety must be viewed as a circle or chain whose components must all remain intact and modern if the whole is to function. Of what value are electronic devices if they are improperly operated? Of what value is a vessel properly equipped and manned when it meets another vessel not similarly equipped? Where is the progress if sophisticated systems and equipment are installed on a ship's bridge while the training and organization of personnel on the bridge lag behind? And finally, of what value is a government program of inspection and licensing, if instead of establishing minimum standards, it defines the ceiling of activity devoted to furtherance of safety?

The answers to these questions lie in the concerted and cooperative efforts of everyone with an interest in safety—government, management, and the men who man the ships. ‡

SS GLOMAR GRAND ISLE

The Commandant's action on the investigation into the death of Per C. Lundin Larsen on 25 August 1968 has been announced

ACTION BY THE COMMANDANT

The findings of fact, conclusions, and recommendations of the investigating officer are approved.

It is noted that, in addition to the safer alternative for this washdown procedure suggested in the report as well as the questionable use and faulty design of the cat-line grip, the use of a 1½-inch manila gantline to support the combined weights of three men, a 500-pound steel basket and a 40-pound hose coupling demonstrates a lack of good judgement. Ordinary safety practices call for the use of a line providing a considerably greater safety factor than existed in this instance.

A copy of this report will be forwarded to the National Offshore Operations Advisory Panel for dissemination of its contents to all operators and crews of similar vessels. The particulars of this casualty will also be published in the Proceedings of the Merchant Marine Council.

C. P. MURPHY,

Rear Admiral U.S. Coast Guard,
Chief, Office of Merchant Marine Safety.

18 February 1969.

FINDINGS OF FACT

1. At 0630, zone O on 25 August 1968, while the SS *Glomar Grand Isle*, O.N. 509269, lay anchored in the Atlantic Ocean at position lat. 28°33' N. and long. 12°17' W., in 300 feet of water, 58 miles off the city of Tan Tan, on the coast of Morocco, crewmember Per C. Lundin Larsen fell to his death, when the manila line, supporting a personnel basket in which he was riding, broke. Also seriously injured were crewmembers Russell Sonnier and Karl M. Johnsen, both of whom suffered multiple cuts and broken legs.

2. The SS *Glomar Grand Isle*, O.N. 509269 (ex-*Levingston Hull 665*), is an inspected American self-propelled drilling ship, owned and operated by the Global Marine Co., of 650 South Grand Avenue, Los Angeles, Calif. The vessel 5,926 gross tons, is 380 feet in length and powered by diesel engines. The *Grand Isle*, whose home port is that of Galveston, Tex., was constructed at Orange, Tex., and issued a certificate of inspection at Port Arthur, Tex.,

on 23 June 1967. The drilling vessel had departed Orange, Tex., in November 1967, when it proceeded to Dakar, Africa, for drilling until March 1968. It moved its drilling location from Dakar to Stavanger, Norway, commencing drilling off that port in May 1968. Those operations were interrupted and the vessel shifted to Morocco in July 1968, where the vessel is still employed assigned to Global Marine Europa, at Post Office Box 334, Agadir, Morocco. Serving aboard in charge of the vessel was Alternate Master Ivo Kuselj, who held license No. 307587, as master unlimited oceans.

3. The weather at the time of the accident was clear and fine with light airs. The vessel was positioned on eight cables, moored to cement anchors and moved 3 to 5 feet on the slight westerly swell.

4. Per C. Lundin Larsen, age 28, who held no seaman's papers, carried Norwegian passport No. 3486/64/31 and had been employed to work as a roughneck at Stavanger, Norway, in May of 1968. His next of kin was his father of Rozenkranzt 12/A, Stavanger, Norway. Larsen had not signed shipping articles, but was carried on a crew list prepared in July 1968, for the trip from Stavanger, Norway, to Agadir, Morocco. His body, is at present in the Municipality Hospital at Agadir, Morocco, where, because of existing regulations, it will not be shipped to Norway for burial until November. It is not likely that an autopsy will be performed or that a death certificate will be issued by Moroccan authorities, although it has been formally requested by company officials.

5. Russell Sonnier, age 38, American, holder of passport No. H 045550, was employed in the capacity of driller and joined the vessel at Stavanger, Norway in May 1968. He listed his wife as a next of kin, giving as her address that of in care of Global Marine Europa Ltd., Post Office Box 138, Stromsteinen, Stavanger, Norway, where they had made temporary residence. Sonnier suffered both legs broken above the knees, a fractured hip, multiple deep cuts about forehead, legs and his right arm. It was estimated that he would be fit to travel about 1 October 1968, when he would be repatriated with his family to some place still to be determined in the United States.

6. Karl M. Johnsen, age 25, Norwegian, held Norwegian passport B-087932/68/31, and had also been employed as roughneck under the same circumstances as Larsen had in May 1968. His next of kin was his father, residing at Roald Amundsenet 22/B, Stavanger, Norway. Although he suffered a broken left leg and deep laceration across his eyes, he was repatriated by air to Norway 2 September 1968.

7. On 25 August 1968, the SS *Glomar Grand Isle* lay moored in about 300 feet of water off the coast of Morocco, conducting exploratory work for the Esso Corp. in behalf of the Moroccan Government. Pipe had been drilled to a depth of about 2,000 feet and at this phase of the operation it was required to insert a 30-inch diameter casing around the drill core. Earlier in the morning divers had been unable to slip the pipe into the prepared hole, because of water cloudiness caused by an accumulation of mud around the hole. In order to facilitate the operation and to permit the use of the available underwater TV camera, it was decided to flush the bottom down with washwater.

8. In charge of the operations was Victor Riley, American, passport F396438, age 45, toolpusher on the 0000-1200 shift. Assisting in the well operation was driller Russell Sonnier and roughnecks Karl Johnsen and Per Larsen and Thor Erik Lunde, Norwegian passport 16495/64-1, age 24. To prepare for the washdown, it was necessary to take the 30-inch casing, at present suspended from the topping lift of the derrick to the ocean floor, lift it clear of the bottom and place the pipe or casing in the slips, a deck or rig floor collar, where the strain would be removed from the topping lift. This was accomplished by heaving on the topping lift, whose lower block was made fast to the casing by means of a special piece of oil working equipment, called elevator. The elevator, weighing several hundred pounds, is basically a clamp, so designed that when in an open position, it may be swung into, as in this case, the casing and automatically it would grab and lock to the casing. Despite its large size, it could be easily rocked free, once the locking latches are opened. The slips were put in place and the strain removed from the topping lift by lowering the casing into that locking device.

9. To flush water down the casing, Riley elected to connect the water hose to the casing at the top of the casing about 50 feet above the deck. A special hose coupling was readied and the 5-inch water hose was connected to a corner air winch or tugger and hoisted to the 50-foot level. There were three additional air winches, but they were variously employed holding the TV equipment, or in other use on the rig floor. As this was the case, Riley used the cat line, a 1½-inch 3-strand manila line, which was lead to the top of the derrick through a single sheave block, making its bitter end fast to a metal personnel basket. The basket, which weighed

an estimated 500 pounds, was 4 by 6 feet, enclosed with wire mesh, 3 feet high. Into this basket was loaded the coupling and three men, Johnsen, Larsen, and Sonnier. The cat line was led to the oil derrick winch and a capstan head, especially provided for the cat line. The line led from the sheave at the top of the derrick to a special device, called a cat line grip, thence to the capstan.

10. The grip is designed to work as a stopper, so that, when closed it will hold the cat line securely at any desired point. The line leads through a channel, which is opposed by a hand actuated grip of metal, shaped as an eccentric cam-type wedge, the contour of a 1½-inch line. It is designed with dull teeth, that take a positive grip on the line and is so shaped that additional strains only serve to close the grip tighter. The grip is reportedly designed for a 6,000-pound working load.

11. Riley himself handled the cat line taking several turns on the winch. As the basket left the rig floor it soon disappeared from his sight and he was directed by hand signals by Thor Lunde, who stood by the corner tugger that was connected to the water hose. The basket reached the desired height and Lunde signaled Riley to stop. The cat line grip was put in place, the turns taken from the capstan head and the line was tied off to some adjacent metal.

12. The men in the basket secured a line from the corner of the basket, around the casing, to the other corner to keep from swinging and in this position attempted to lift the 40 pound water connection to fasten it to the casing. At this time it was noted that the basket rested against the elevators, which keep them just far enough away from the casing to impede putting the coupling in place. Sonnier, who was in charge in the basket, told Johnsen to open the latches on the elevator, and with his foot against the casing Sonnier attempted to clear the elevator.

13. At this moment, the personnel basket began to fall in three distinct jerks as the manila line parted. The basket fell 50 feet to the deck, tumbling the three men with it. It was immediately apparent, that all men were gravely injured, bleeding profusely from numerous cuts and visibly broken legs. Larsen was unconscious and bleeding from the mouth. Limited first aid was applied and the men were not moved. At 0810 Larsen stopped breathing and that time, was recorded as the time of death. At 0915 the helicopter, that serviced the vessel from Tan Tan, brought a male nurse, who commenced treatment until the arrival of the doctor at 1011.

14. In the confusion that followed the accident, no one could remember if turns had remained on the winch or if the line had been secured. However, the broken line had been kept, and examination disclosed that one strand appeared to be cut half through and the others jawed out and parted.

15. As the break in the manila line appeared to have occurred within the vicinity of the cat line grip, a test was made, using identical line. It was found that when modest strain was placed on the line, the grip tightened to such an extent, that the trailing edge of the clamp closed upon the line in the slot, and severed the line.

16. Victor Riley, toolpusher, in charge of the deck, was not available for interview. Prior to the investigation it had been considered that his effectiveness as a leader had been lessened by the accident and he had been immediately replaced. It was not determinable if Riley was to continue in the employ of the company.

17. It was noted that the casing, which was being installed, was joined together in 30 feet sections and that casing could have been opened at nearly deck level for the installation of the water connection.

18. The survivors were interviewed as they underwent treatment in the Moroccan Hospital at Agadir. As they were in obvious pain and under sedatives, their statements appear in an unsigned summarized form. Additionally the Norwegian witnesses had to be interviewed with the help of an interpreter.

19. Representatives of the Glomar Marine Corp. plan

modification or replacement of this and similar equipment within their fleet.

CONCLUSIONS

1. Based on the foregoing it is concluded that the death of Per C. Lundin Larsen and the injuries to his fellow crewmembers, that occurred aboard the SS *Glomar Grand Isle* on 25 August 1968, were caused by the failure of the cat line grip, whose design permitted the grip to sever the line it was intended to hold.

2. It is further concluded that although the election to work aloft was feasible and within the scope of the equipment and personnel, it was unnecessarily hazardous, when the same work could have been performed in relative safety deck level.

3. There was no fault or misconduct of licensed or certificated personnel and no failure of approved equipment. As the company plans modification to the winch, which is specialized equipment for oilfield work, no action is indicated.

RECOMMENDATIONS

1. It is therefore recommended that no further action be taken and the case closed.

4 October 1968.

AMENDMENTS TO REGULATIONS

Approved Equipment

Commandant Issues Equipment Approvals

U.S. Coast Guard approval was granted to certain items of lifesaving, and other miscellaneous equipment and materials.

Those interested in these approvals should consult the Federal Registers

of May 3 and 9, 1969, for detailed itemization and identification.

STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from April 1 to May 31, 1969, inclusive, for use on board vessels in accordance with the provisions of part 147 of the regula-

tions governing Explosives or Other Dangerous Articles on Board Vessels: are as follows:

CERTIFIED

Willamette Chemical Co., 1231 North West Hoyt St., Portland, Ore.: Certificate 851, dated April 3, 1969, PAC-MAR DEGREASER.

William J. Snee & Co., One Newark St., N.J. 07030: Certificate 852, dated May 6, 1969, OIL-SOL Degreaser.

ACCEPTABLE HYDRAULIC COMPONENTS

Nonductile hydraulic components which have passed high impact shock tests. Unless otherwise noted, the material is cast iron.

Manufacturer	Valve type	Identity	Maximum allowable working pressure (p.s.i.)
Webster Electric Co., Inc., Fluid Power Division, 1900 Clark St., Racine, Wis. 53403	Directional Control.	Series 4V.....	2500

AFFIDAVITS

The following affidavits were accepted during the period from April 15, to May 15, 1969:

Mueller Steam Specialty Division of SOS Consolidated Inc., 29 Meserole Ave., Brooklyn, N.Y. 11222, VALVES.

Record Corp., Post Office Box 153, Livermore Falls, Maine 04254, VALVES.

SEAMANSHIP SAFETY AWARD



Courtesy Merry, Calvo, Lane & Baker, Inc.

Captain D. E. Wanker, skipper of the SS Japan Mail, accepts the American Mail Line annual SeamanSHIP Safety Award on behalf of the vessel and crew. Paul F. Stumpf, AML safety director, presents the award. Looking on is Roy Schulz, acting assistant vice president for operations.

The SS *Japan Mail*, for the second time since 1963, has received the American Mail Line annual SeamanSHIP Safety Award. Given to the vessel with the best safety record, the award honors the ship experiencing the least number of lost-time accidents for the year based on her total number of man-hours of exposure.

The SS *Japan Mail* established her record for the year while traveling a distance of 62,827 nautical miles, making a total of 134 calls at foreign and domestic ports. For the period,

she carried 139,351 cargo revenue tons, spending 153 days at sea and 199 in port. This year marked voyages 31 through 35 for the ship, which has been in service for the Seattle-headquartered steamship company since 1962.

Other recipients of the award in recent years include the now retired SS *American Mail* (1968, 1961, and 1960); SS *Philippine Mail* (1965); the retired SS *Bengal Mail* (1964); SS *Oregon Mail* (1962), and the retired SS *India Mail* (1959). ‡

Revised Marine Engineering Regulations Effective 1 July 1969

The revised Marine Engineering Requirements, 46 CFR, parts 50 through 63, were published in Federal Register, volume 33, No. 245, part II dated 18 December 1969. While the actual difference in requirements as applied to engineering installations is not great, the idea of adopting and adapting existing industry standards by direct reference is different. The revised Subchapter F—Marine Engineering, through incorporation by reference, provides that specific industrial codes, standards, or specifications, be used in the design, construction, fabrication, use, and maintenance of engineering installations, but subject to the modifications or additions specifically set forth in the regulations. Through the medium of reference, these regulations will be kept abreast of advancing technology and will better serve the needs of industry as well as the Coast Guard. The revised regulations will become effective 1 July 1969 and will be applicable to installations contracted for or built on or after the effective date. ‡

Merchant Marine Detail Manila

A new Merchant Marine Detail was established on 15 June 1969, at the American Embassy in Manila. This two-man unit under the com-

mand of Commander E. L. Murdock, USCG, will be available for consultation on all shipping matters relating to United States merchant vessels and merchant marine personnel.

The Merchant Marine Detail can be contacted as follows: Radio message traffic should be sent c/o American Embassy, Manila; the mailing address is U.S. Coast Guard Merchant Marine Detail c/o American Embassy, Manila, R.P. ⚓

Stowage

Manual

Now Available

A 24-page manual on the safe stowage of cargo containers for all types of transportation has been published by the National Cargo Bureau. The manual, which is entitled "Shippers' Guide For Proper Stowage Of Intermodal Containers With Emphasis On Ocean Transport," is designed to combat the increasing incidence of serious damage to cargo and containers.

The manual contains guidelines which can be applied to loading all types of cargo into containers for rail and truck as well as marine transportation. However, the emphasis is on ocean transportation because of the violence of sea movements during storms. In addition to covering the problems of stowing cargo in containers, the guide contains a section on dangerous and incompatible cargoes and includes a bibliography of sources for more detailed information on stowage.

The following examples illustrate the damage that can result when containers are loaded improperly, especially for sea voyages:

- Electronic equipment valued at over \$500,000 recently arrived at its destination in a state of scrambled electronics, a total loss.

- When the door of a metal van that had been loosely loaded with assorted unboxed metal parts was opened after

a recent ocean voyage, the contents spilled out in a tangled mess. The container was a wreck.

- A cargo of foodstuffs valued at several hundred thousand dollars shifted within the container when the ship rolled. During one roll the container doors gave way and the contents spilled into the ocean.

- A large piece of machinery in a container stowed below deck became loose. When the ship began to roll, heave, pitch, and yaw during heavy weather, the machinery smashed through the wall of the van and de-

stroyed four other containers and their contents.

These incidents and hundreds of others might have been avoided with the aid of the information contained in the "Shippers' Guide." Copies of the manual are available to shippers and others interested in container stowage. They may be obtained by writing to:

National Cargo Bureau, Inc.
99 John Street
New York, N.Y. 10038

⚓

Shipboard Health Depends on Food, Drink, Exercise

A century ago shipboard life was one of unbelievable hardship. Wet unheated quarters, poor food and intolerable working conditions were responsible for ill health and shortened lives of seamen. Conditions aboard ship today are in marked contrast. Quarters are clean, dry, warm and the food is comparable to any ashore.

However a number of reports of serious diseases to relatively young seamen make it appear that seamen still should take more care of their own physical fitness. Kidney disease, stomach disorders, heart conditions and liver involvement are all too common.

What then is the trouble? Perhaps a combination of too little exercise and chronic overeating at sea, coupled with the normal desire to "blow off a little steam" in port after being cooped up aboard ship for an extended period that frequently ends up with an excess intake of alcohol of questionable quality. All too vividly comes to mind the "Sandpaper Gin" of the Philippines, the "Monkey Rum" in the Canal Zone, or the "Genuine Scotch Whiskey" the Algerians used to peddle that would

literally etch the bottles it was in.

Seamen get exercise but too frequently it is the wrong kind—heavy hard work for short periods. Sea air and a rolling ship build up a fine appetite which certainly must be satisfied. However, after seeing a 400 lb. wiper heave himself up the gangway and have to rest at the top all out of breath, you wonder if the satisfaction of stuffing himself three times a day compensates for his real physical infirmities and the shortened life he will lead.

Somewhere each individual should draw the line between satisfaction and satiation, between the pleasant aura of well being after a couple of leisurely drinks in pleasant company and the stupefaction of drunkenness.

Eat well and try to get some moderate exercise after a meal. Walking the deck for half an hour is ideal. That rubber tire amidships will disappear with a few regular exercises. Perhaps knee bends, push ups, etc., provided the weather is right. Proper rest and moderation during periods ashore make the next day a lot easier. ⚓

Courtesy The Safety Valve

nautical queries

DECK

Q. How should potable water piping be marked?

A. The piping of a potable water system should be suitably stenciled, painted light blue, or striped with six-inch blue bands at fittings, on each side of partitions, decks, and bulkheads, and at intervals not to exceed 15 feet in all spaces except quarters, dining rooms, salons, and other public places where the interior finish would be marred.

Either the bodies of valves installed in that part of the potable water system which is marked should be painted light blue or the valve wheel should be appropriately labeled.

1.24 *Handbook of Sanitation of Vessels in Operation*, PHS.

Q. What is a vessel's enrollment?

A. A document issued by the district customhouse where the vessel is enrolled giving description of the vessel, where built and material built of, when and by whom built and where; dimensions, type, official number, hailing port, and owner. The enrollment is permanent and remains the same until the ship is sold or rebuilt or tonnage changed. The enrollment must be aboard at all times in the master's room. Change of master is noted on back of enrollment.

Q. You are loaded to $6\frac{1}{4}$ inches of your seagoing draft and there are 340 tons of cargo still on the dock. If the T.P.I. is 50, how much can you take? Can you take it all or can you take more?

A. $6\frac{1}{4}$ inch by 50 T.P.I. equals 312.5 tons can be taken and 27.5 tons unable to load.

ENGINE

Q. Field excitation where required is always supplied from:

- (a) A source of direct current
- (b) An alternator
- (c) A magnet
- (d) Selenium rectifier

A. (a) A source of direct current

Q. Which of the following is *not* ordinarily used for determining power factor?

- (a) Voltmeter
- (b) Tachometer
- (c) Ammeter
- (d) Wattmeter
- (e) Power-factor indicators

A. (b) Tachometer

Q. (a) Where is the back pressure valve installed?

(b) Why is this valve so important?

A. (a) It is a spring loaded valve fitted in the exhaust line.

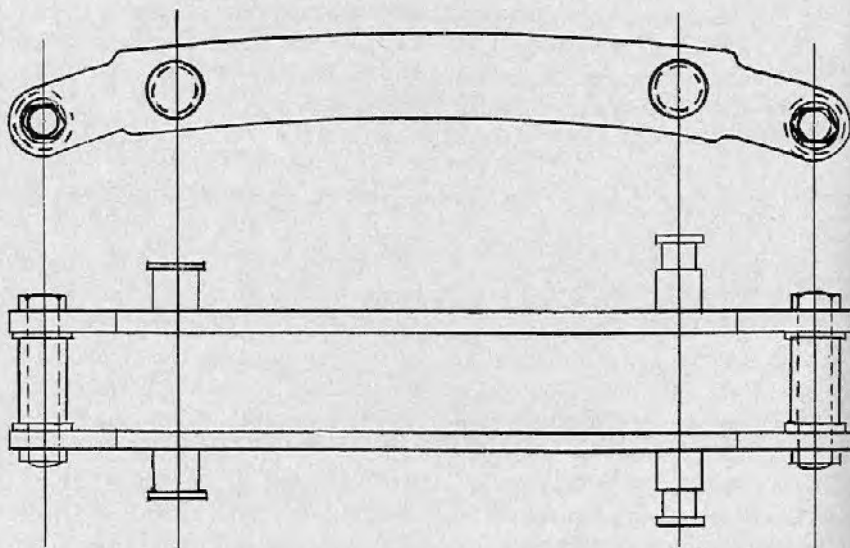
(b) To provide constant pressure in the exhaust line, to provide a cushion to all reciprocating auxiliaries and to maintain a set pressure of steam on the feed water heater.

Q. In fighting fire with foam equipment the stream of foam should be directed:

- (a) In a sweeping motion across the fire
- (b) On the deck and ahead of the fire
- (c) Directly at yellow portion of the flame
- (d) At a level as high as the flame

A. (b) On the deck and ahead of the fire

Q. Sketch the double-bar type Stephenson link.



Attitudes on Smoking

PACIFIC COAST MARINE SAFETY CODE Rule 310 reads as follows:

"Employers and employees shall do everything possible to prevent fires. Smoking shall be permitted on board ship or on piers in designated areas only."

HOWEVER! ! ! . . .

Let's face it, many cigarettes are smoked in unauthorized areas, both aboard ship and on the dock along the waterfronts of Pacific coast ports. We have books full of rules, thousands of square feet of "NO SMOKING" signs and strict policies by every Member Company against smoking in dangerous areas.

We all feel the same twinge when we hear the news broadcast announcing a burning ship 200 or 300 miles out at sea. The best that each of us can do in this case is a quick mental search asking, "Did it load at our port?" followed by an instant sigh of relief if it didn't. But what then is the reaction if it did?

No other major aspect of waterfront safety has received more, long-term analysis, thought and effort at control than has the fire hazard presented by the unauthorized smoking of cigarettes. We like to think that no problem can remain unsolved in this day of computer technology. The smoking situation is certainly not a triumph in this direction.

Research into the reasons for this failure is difficult. Learned opinions vary but, some theories recur and



seem valid. For example, what is the motivation for nonsmoking in the hold of a ship? The longshoreman is seldom hurt by the ensuing fire as it usually occurs miles away. Dangers that fall into this remote, personal category furnish weak or nonexistent drives to counteract the strong and immediate urge for a cigarette. Few men smoke over an open pool of gasoline; a bale of cotton is another story.

We must also face the fact that members of line supervision smoke in unauthorized areas. It is very difficult to enforce a "NO SMOKING" rule when the employee has to read the

"NO SMOKING" sign around a Boss who is standing in front of the sign with a lighted cigarette in his mouth.

Punitive action seems excessively drastic when levied for the seemingly insignificant act of smoking a cigarette, but this may be the only way to set off the chain reaction that could culminate in real and effective fire prevention.

One authority on waterfront safety set forth the theory that sending receptacles for cigarette butts into ship's holds along with the water can is the answer to the fire prevention part of the problem. He added that years of effort have not stopped the smoking in the holds. Recognizing this fact—and containing the smoldering butts, which are the actual source of the fires—might be the first step on the road to control of the problem.

One has only to talk to Captains and Mates who have undergone the nightmare of a fire at sea to become vividly aware of the existence of the problem.

Some ship's officers are fatalistic and will ignore the longshoremen and their supervision whom they see smoking in the holds. Other officers protest, then rig fire hoses and pray. They have great motivation, but we, ashore, must come up with the right answers and somehow enact the "miracle" which has eluded those who have sought to achieve real "NO SMOKING" control on the waterfront over past decades. &

Courtesy The Channel

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 2-69

29 April 1969

Subj: Submission of reports for the shipment and discharge of seamen not shipped or discharged before a shipping commissioner; information concerning

Form CG-718A----- Certificate of Discharge to Merchant Seaman.
Form CG-718E----- Record of Entry in Continuous Discharge Book.

PURPOSE

The purpose of this circular is to provide information about reporting the employment, discharge, or termination of the services of seamen employed on merchant vessels of the United States of 100 gross tons and upwards. This reporting includes the making of appropriate entries on Certificates of Discharge issued to merchant seamen or in Continuous Discharge Books held by such seamen. These reports are required by subsection (1) of section 643 of title 46, United States Code, and part 14 of title 46, CFR. Applicable sections of the regulations are included with this circular as enclosure (1). Attention is called to the penalty provided in 46 U.S.C. 643 (1) and 46 CFR 14.05-20(f) for noncompliance with these regulations.

CIRCULAR CANCELED

This circular supersedes and cancels Navigation and Vessel Inspection Circular No. 5-53 dated 30 July 1953.

DISCUSSION

The records of merchant seamen at Coast Guard Headquarters indicate that the masters of some vessels subject to the provisions of 46 U.S.C. 643 are not submitting the required employment reports. This is particularly true with respect to many vessels presently employed in lakes, bays, and/or sounds, service as well as with many types in coastwise service such as towing vessels, offshore supply vessels, oceanographic research vessels, etc. The information contained herein should be widely disseminated throughout all phases of marine activities in order to insure knowledge and compliance with the regulations noted. A listing of discrepancies frequently noted in checking of records submitted to Coast Guard Headquarters is included as enclosure (2).

FORMS

The following forms are prescribed for the use of masters of vessels who are required to submit these reports. A supply of these forms can be obtained from any U.S. Coast Guard Marine Inspection Office.

Form CG-735(T)--- Master's Report of Seamen Shipped or Discharged.

VESSELS AFFECTED

These reports, using the forms listed in paragraph 4 above, must be submitted by the masters of merchant vessels of the United States of 100 gross tons and upward when seamen are not shipped or discharged before a shipping commissioner, or a collector or deputy collector of customs acting as shipping commissioner. However, the following vessels are exempt from these reporting requirements:

- a. Vessels employed exclusively in trade on the navigable rivers of the United States.
- b. Fishing and whaling vessels
- c. Ferries and tugs used in ferry operations if such ferries and tugs are employed exclusively in trade on the Great Lakes, lakes (other than Great Lakes), bays, sounds, bayous, canals, and harbors and are not engaged on an international voyage.
- d. Unrigged vessels other than seagoing barges.

INSTRUCTIONS FOR SUBMITTING REPORTS

The instructions for preparation and submission of form CG-718A and form CG-718E are contained in 46 C.F.R. 14.10-1 and 14.10-5. If the owners or masters of any merchant vessel of the United States have any doubt as to whether or not submittal of these forms is required they should consult the nearest officer in charge, marine inspection. That officer will determine whether or not the reports are required. He will also be able to answer any questions that may arise concerning these forms and the shipment and discharge of seamen in general. The submission of these reports does not relieve any owners or masters from complying with any other provisions of law and/or regulation including those which require an agreement or articles to be signed between the master and the crew or which require the submission of a crew list. The owners and masters of vessels should become familiar with the laws and regulations requiring the submission of these forms in order to insure compliance therewith and to avoid the penalties prescribed. Care should be exercised in preparing the forms in order to avoid unnecessary correspondence concerning same.

Copies of this circular with enclosure (1) may be obtained at the local marine inspection office or by writing Commandant (CAS-2), U.S. Coast Guard, Washington, D.C. 20591. ‡

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, 1969 are now available from the Superintendent of Documents, price: \$3.75.

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 (5-1-68).
115	Marine Engineering Regulations and Material Specifications (3-1-66). F.R. 12-6-66, 12-20-67, 6-1-68, 12-18-68.
123	Rules and Regulations for Tank Vessels (5-2-66). F.R. 12-6-66, 12-9-67, 12-27-67, 1-26-68, 1-27-68, 2-10-68, 4-12-68, 6-1-68, 10-2-68, 12-18-68, 12-28-68.
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, 7-30-66, 8-2-66, 9-7-66, 10-22-66, 12-23-67, 6-4-68.
172	Rules of the Road—Great Lakes (9-1-66).
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). F.R. 12-6-66, 1-6-67, 9-27-67, 7-12-68.
182	Specimen Examinations for Merchant Marine Engineer Licenses (7-1-63).
184	Rules of the Road—Western Rivers (9-1-66). F.R. 9-7-66, 12-23-67.
190	Equipment Lists (8-1-68). F.R. 11-7-68, 11-8-68, 11-16-68, 11-19-68, 11-20-68, 12-11-68, 12-18-68, 2-11-69, 2-18-69, 2-21-69, 2-26-69, 3-15-69, 3-27-69, 4-4-69, 4-12-69, 4-19-69, 4-25-69, 4-26-69, 4-29-69, 5-3-69, 5-9-69.
191	Rules and Regulations for Licensing and Certifying of Merchant Marine Personnel (5-1-68). F.R. 11-28-68.
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (5-1-67). F.R. 3-30-68.
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 (5-1-68).
249	Merchant Marine Council Public Hearing Agenda (Annually).
256	Rules and Regulations for Passenger Vessels (5-2-66). F.R. 12-6-66, 1-13-67, 4-25-67, 8-29-67, 12-20-67, 1-27-68, 4-12-68, 10-2-68, 12-18-68, 12-28-68.
257	Rules and Regulations for Cargo and Miscellaneous Vessels (1-3-66). F.R. 4-16-66, 12-6-66, 1-13-67, 12-9-67, 1-26-68, 1-27-68, 2-10-68, 4-12-68, 6-1-68, 10-2-68, 12-18-68, 12-28-68.
258	Rules and Regulations for Uninspected Vessels (3-1-67). F.R. 12-27-67, 1-27-68, 4-12-68, 12-28-68, 3-27-69.
259	Electrical Engineering Regulations (3-1-67). F.R. 12-20-67, 12-27-67, 1-27-68, 4-12-68, 12-18-68, 12-28-68.
266	Rules and Regulations for Bulk Grain Cargoes (5-1-68).
268	Rules and Regulations for Manning of Vessels (5-1-67). F.R. 4-12-68.
293	Miscellaneous Electrical Equipment List (9-3-68).
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf (11-1-68). F.R. 12-17-68.
323	Rules and Regulations for Small Passenger Vessels (Under 100 Gross Tons) (1-3-66). F.R. 12-6-66, 1-13-67, 12-27-67, 1-27-68, 4-12-68, 11-28-68, 12-18-68, 12-28-68.
329	Fire Fighting Manual for Tank Vessels (7-1-68).

CHANGES PUBLISHED DURING MAY 1969

The following have been modified by Federal Registers:

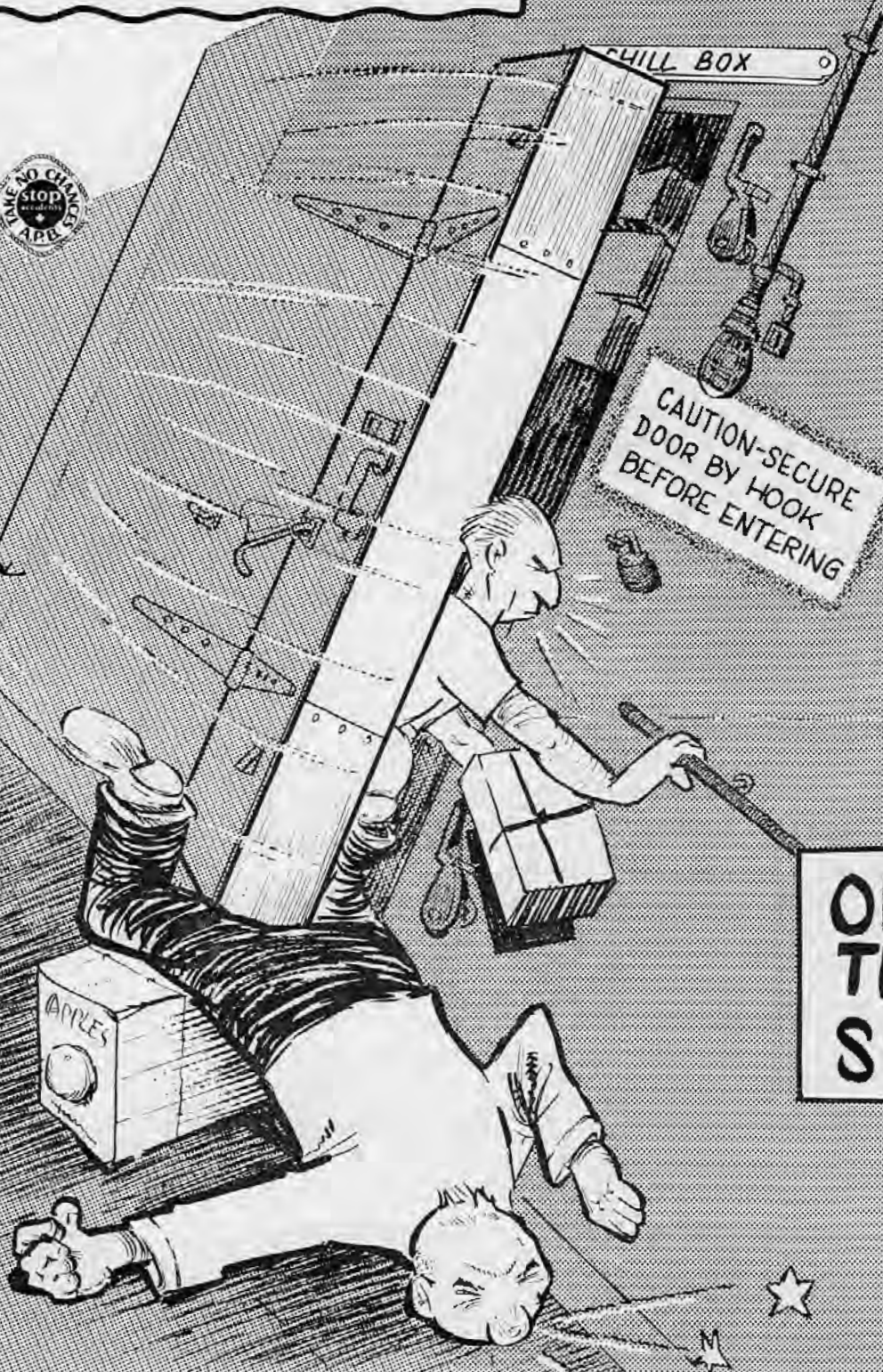
CG-190, Federal Registers, May 3 and 9, 1969.

M.T. NOGGIN

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