

PROCEEDINGS OF THE MERCHANT MARINE COUNCIL UNITED STATES COAST GUARD

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not less than
20 readers.
PASS IT ALONG

CG 129



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Season's Greetings



MERCHANT MARINE COUNCIL

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Coast Guard

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EDITOR'S NOTE:

The Side Lights on the Rules series will be held in abeyance for one issue in order that space normally devoted therefor may be used for the timely article on the opposite page. The next article on the Side Lights on the Rules series will appear in the January 1955 issue.

MARINE SECTION, NATIONAL SAFETY COUNCIL

The Marine Section of the National Safety Council held its annual meeting in Chicago, Ill., October 19-21, 1954, and was attended by marine and Government officials from all parts of the country.

After welcoming and opening remarks by the general chairman, Mr. John G. Pew, Jr., vice president, Sun Shipbuilding and Dry Dock Co., the meeting commenced with the ship operator's session. The remainder of the program consisted of the business meeting, a second ship operator's session, the Coast Guard session, and a joint luncheon with the Propeller Club of Chicago.

The Coast Guard session was opened by Vice Adm. Alfred C. Richmond, Commandant of the Coast Guard, who, after opening remarks, introduced Rear Adm. Halbert C. Shephard, Chief, Office of Merchant Marine Safety, U. S. Coast Guard, who gave comments on the progress of marine safety during the past year.

Speakers at the Coast Guard session in addition to Admiral Shephard were: Capt. James D. Craik, chief of the Merchant Vessel Personnel Division of the U. S. Coast Guard, who spoke on "Physical Condition of Seafarers in Relation to Safety at Sea," and Lt. Edward F. Oliver, USCG, Merchant Vessel Personnel Division, Coast Guard Headquarters, who spoke on "Narcotics Versus Safety at Sea." It is intended that these papers will be reprinted in the PROCEEDINGS inasmuch as they concern topics which are of vital interest to both the industry and Coast Guard at this time. Captain Craik's address appears on page 192 of this issue of the PROCEEDINGS and Lieutenant Oliver's will be published at a later date.

Space limitations do not permit an extensive treatment of the various addresses made before the marine section as a whole, consequently only

(Continued on page 198)

PHYSICAL STANDARDS OF SEAFARERS IN RELATION TO SAFETY AT SEA

By JAMES D. CRAIK, Captain, USCG Merchant Vessel Personnel Division—USCG Headquarters

Excerpts from an address presented at the annual session of the Marine Section of the National Safety Council at Chicago, Ill., October 19-21, 1954. This address promulgates to the marine industry the proposed physical standards for merchant seamen.

In the very near future a draft of proposed physical standards applicable to licensed and certificated personnel of the United States Merchant Marine will be sent to all segments of the maritime industry. A committee consisting of representatives of the Coast Guard and Public Health, and also a representative of the Bureau of Employment Security of the Department of Labor, worked on these standards for over a year, commencing in May 1953. After studying many types of physical standards, the proposed draft decided upon is actually an adaptation of the recognized PULHES functional or profiling system.

The committee adopted the functional or profiling system as one believed best suited to the situation. The minimum physical requirements of each capacity on board ship was considered in the relationship of that degree of physical functions the specific job demanded; such requirements coupled with the minimum requirements of safety to be expected from that capacity formed the basic minimum for each capacity considered. Such a functional system can also be considered a form of placement system in that men not possessing the essential physical requirements for one capacity might be acceptable in another capacity.

It is to be kept in mind that the committee did not intend that all merchant seamen be supermen but rather that they be suitably placed on board ship in a proper working capacity and to assure that they were neither a menace to themselves nor others. Men sailing in the various capacities at present with some form of physical deficiency, but having proved by their sailing record that they are competent to properly perform their duties, would be granted a waiver to continue sailing as long as they proved competent.

We are submitting all this information in a suggested or proposed status to all segments of the maritime industry in order that they might be able to follow our reasoning and motivations in drafting such proposed standards, and to indicate to them the machinery planned for its operation. It is

normally unusual to disseminate all such detailed information, but we would like the industry to realize that we are trying to be essentially fair, and are concealing nothing. As attachment "A" to this paper, I have included part 1 of such drafted physical standards, which is the section on the "Description and Use of the Profiling System."

I would like to strongly emphasize that we are also taking an unusual step in sending out such proposed draft of physical standards to industry for comment as a form of initial stage. The normal procedure is to request comments as an immediate preliminary to a public hearing. However, we are endeavoring in this instance to take advantage of the counsel of all segments of the industry, and their constructive criticism of our proposals, before any further action is considered.

At present article 10.02-5 (e) (2) of the Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel reads as follows:

"Epilepsy, insanity, senility, acute venereal disease or neurosyphilis, badly impaired hearing, or other defect that would render the applicant incompetent to perform the ordinary duties of an officer at sea are causes for certification as incompetent."

With the exception of some further requirements pertaining to acuity of vision and color sense, the above-quoted paragraph is the only guide which the Public Health Service has in examining merchant marine personnel. Therefore, apart from any other consideration of the necessity of physical standards, it is definitely indicated that the Coast Guard and Public Health need a better system of communication and methodology between themselves.

As to the advisability of standards for physical examinations for the personnel serving on board vessels of the United States, I refer you to the annual analysis reports of the Marine Index Bureau, Inc., of March 15, 1954, for the previous year (copy enclosed marked "attachment C"). This report speaks for itself. The number of cases cited of individuals with what should be excludable diseases is truly astounding. I do not believe there is much doubt that the United States Merchant Marine is a special-type industry, vitally important to the economy of our country and a recognized fourth arm of defense in time of emer-

gency. It also can be considered to have diplomatic connotations in a form of advertising our standards of living and Americanism. As far as materiel and equipment are concerned, our United States vessels are the safest of any maritime nation in the world, but as indicated by "attachment C" it is questionable whether personnel falls into that same category of safety. It is apparent that if the safety of our United States vessels is to be properly considered, then personnel must be better coordinated with the standards of materiel and equipment. This can only be done by appropriate physical standards.

AUTHORITY OR LACK OF AUTHORITY IN CONNECTION WITH PHYSICAL STANDARDS

The Coast Guard is vested with the responsibility of safety at sea. In the performance of our duties we are public servants and we have no desire to be anything more. In such status we can only do as good a job as the public, through Congress, provides us with effective tools. In the matter of physical standards the effective tools of statutory authority are rather weak.

Enclosed find attachment "B", an outline of the statutory authority for physical requirements pertaining to United States Merchant Marine personnel. We do have statutory authority to have all original applicants for officers' licenses physically examined. If the applicant successfully passes such physical examination, and otherwise qualifies, he is issued a license which remains in force for a period of 5 years. For renewal of such license no physical check is made on the applicant with exception of a check for color blindness in deck officers. The only exception is the radio officer where, by virtue of more recent enactment of Public Law 525, he may be physically examined for purposes of renewal of his license. A physical examination of staff officers cannot be required. I call to your attention, as outlined in the authorities quoted, that under certain circumstances an officer can renew his license by mail. As far as the unlicensed capacities are concerned, there is statutory authority to have applicants for ratings of AB, lifeboatman, QMED, and tankerman physically examined prior to the issuance of any merchant mariner's document. However, once

the applicant is issued such document, there are no further physical checks required by law. As far as the entry ratings are concerned—ordinary seaman, wiper, coal passer—no physical examination can be required. Members of the stewards' department can only be physically examined for communicable diseases in the cases of food handlers.

It might be advisable to point out that under Revised Statute 4450 (46 USC 239), which authorizes, in part, investigation of incompetent seamen, there are further limitations restricting action in cases of physical incompetency to only when the individual involved is actually serving, at the time, under the authority of his document or license. A close perusal of this statute, as amended, will indicate that, technically, if a seaman were suffering from leprosy, tuberculosis, psychosis, or other similar-type malady, and even though his malady was known and recognized, no action could be brought against him unless he was actually serving on some vessel while having such malady, and manifested incompetency while so serving. It seems paradoxical that such a situation could possibly exist, but it does.

The question now is what can be done to improve an obviously poor situation which needs correction. As pointed out, the Coast Guard, in its role of public servant, is lacking the administrative tools to properly cope with the predicament, and therefore, cannot fulfill its obligations in respect to its responsibility for safety at sea. It would appear that it is now time for all segments of the industry to ponder on this deficiency, and to consider whether or not they wish to vest the Coast Guard with the proper equipment for a suitable remedy. Such remedy would, of necessity, have to be in some form of physical standards backed by appropriate legislation. The Coast Guard is appealing for assistance to achieve a solution to this problem which it otherwise cannot accomplish.

ATTACHMENT A

DESCRIPTION AND USE OF THE PROFILING SYSTEM

MATCHING MEN IN JOBS

The problem of selecting and hiring qualified maritime industry personnel necessitates matching the right worker with the right job. In this respect, this industry is no different than others. While it is, of course, necessary in the hiring process to match all aspects of the worker's abilities with the total job requirements, this manual treats only those factors concerned with physical fitness of workers in relation to the physical requirements for jobs. There are two general situations in which this determination must be made in the maritime

TABLE I
THE "SAILORS" PROFILING SYSTEM

Designation	Factor	Physical activities to be considered	Degrees																																				
S (Strength)	Overall Strength and Stamina	Lifting Carrying Pushing Pulling Climbing	Individual is capable of and job requires— 1. Heavy work under adverse conditions for moderate periods. 2. Moderate work under adverse conditions for long periods. 3. Moderate work under adverse conditions for moderate periods. 4. Moderate work under moderate conditions for moderate periods.																																				
A (Arms)	Strength and range of movement of upper extremities, including arms, hands, fingers, shoulders, and neck	Reaching Handling Grasping Lifting Fingering Feeling Climbing	Individual is capable of performing and job requires— 1. Full range of upper extremity functions in a precise and coordinated fashion. 2. Most of the upper extremity functions in an acceptable fashion. 3. Only limited upper extremity functions (specify limitations and residual capacities).																																				
I (Incapacitating diseases and conditions)			1. Individual is free of any mandatorily excludable diseases or conditions listed in (2) below. (NOTE.—All jobs are rated (1).) 2. Individual has any of following incapacitating diseases which would exclude him from employment: a. Any communicable disease which constitutes a public health hazard so long as it is in a communicable stage. b. Tuberculosis, pulmonary, active of any degree; and far advanced even though quiescent or inactive (see "Instructions to Examining Physicians" for conditions of reemployment). c. Convulsive disorders of any type irrespective of medical control. d. Noncontagious chronic skin diseases which are so disfiguring as to render the individual objectionable in common social intercourse. e. Diabetes mellitus, requiring insulin, or not easily controllable by diet available aboard ship. f. Severe allergic disorders and severe asthma. g. Severe gastrointestinal disorders. h. Hemophilia and other diseases which seriously interfere with blood coagulability. i. Vestibular disease and other diseases which seriously limit ability to maintain balance. j. Gross speech defects. k. Anosmia. l. Skull defects of such size and location as to dispose toward traumatic brain damage aboard ship.																																				
L (Legs)	Strength and range of movement of lower extremities including feet, legs, pelvic girdle, and lower back	Standing Walking Climbing Balancing Stooping Kneeling Crouching Crawling Lifting Carrying Seeing	Individual is capable of performing and job requires— 1. Full range of lower extremity functions in a precise and coordinated fashion. 2. Most of the lower extremity functions in an acceptable fashion. 3. Only limited lower extremity functions (specify limitations and residual capacities).																																				
O (Observation Powers).	Vision.....	Seeing.....	Individual is capable of seeing and job requires vision to the extent that: <table><tr><td>Vision in one eye is—</td><td>Vision in other eye is—</td><td>Color vision is—</td></tr><tr><td>1. 20/20 or without glasses....</td><td>20/40</td><td>Normal (Stillings or Williams).</td></tr><tr><td>20/40.....</td><td>20/70</td><td></td></tr><tr><td>correctible to 20/20.....</td><td>20/40</td><td></td></tr><tr><td>2. 20/30 or without glasses....</td><td>20/50</td><td>Distinguish red, blue, green, and yellow.</td></tr><tr><td>20/50.....</td><td>20/70</td><td></td></tr><tr><td>correctible to 20/30.....</td><td>20/50</td><td></td></tr><tr><td>3. 20/30 or without glasses....</td><td>20/50</td><td>None required.</td></tr><tr><td>20/50.....</td><td>20/70</td><td></td></tr><tr><td>correctible to 20/30.....</td><td>25/50</td><td></td></tr><tr><td>4. 20/40 (corrected vision)....</td><td>20/70</td><td>None required.</td></tr><tr><td>5. (a) Correctible vision less than 20/50 and 20/70—color sense normal. (b) Vision within 1, 2, 3, or 4 above—color sense abnormal (record findings).</td><td></td><td></td></tr></table>	Vision in one eye is—	Vision in other eye is—	Color vision is—	1. 20/20 or without glasses....	20/40	Normal (Stillings or Williams).	20/40.....	20/70		correctible to 20/20.....	20/40		2. 20/30 or without glasses....	20/50	Distinguish red, blue, green, and yellow.	20/50.....	20/70		correctible to 20/30.....	20/50		3. 20/30 or without glasses....	20/50	None required.	20/50.....	20/70		correctible to 20/30.....	25/50		4. 20/40 (corrected vision)....	20/70	None required.	5. (a) Correctible vision less than 20/50 and 20/70—color sense normal. (b) Vision within 1, 2, 3, or 4 above—color sense abnormal (record findings).		
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5. (a) Correctible vision less than 20/50 and 20/70—color sense normal. (b) Vision within 1, 2, 3, or 4 above—color sense abnormal (record findings).																																							
R (Reception of sound).	Auditory perception.	Hearing.....	Individual is capable of hearing and job requires hearing to the extent that— <table><tr><td>Hearing in better ear is—</td><td>Hearing in poor ear is—</td></tr><tr><td>1. 15 ft.....</td><td>10 ft.</td></tr><tr><td>2. 15 ft.....</td><td>5 ft.</td></tr><tr><td>3. 10 ft.....</td><td>10 ft.</td></tr><tr><td>4. 10 ft.....</td><td>5 ft.</td></tr><tr><td>5. Less than 4 (record findings).</td><td></td></tr></table>	Hearing in better ear is—	Hearing in poor ear is—	1. 15 ft.....	10 ft.	2. 15 ft.....	5 ft.	3. 10 ft.....	10 ft.	4. 10 ft.....	5 ft.	5. Less than 4 (record findings).																									
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5. Less than 4 (record findings).																																							

THE "SAILORS" PROFILING SYSTEM—Continued

Designation	Factor	Physical activities to be considered	Degrees
S (Stability)....	Emotional stability.	Individual exhibits behavior pattern which— 1. a. Is calm, cooperative, interested, and alert. b. Presents minor neuropsychiatric conditions. c. Presents psychiatric disorders from which recovery may be anticipated and which can be benefited by maritime employment. 2. a. Presents psychiatric disorders from which recovery may be anticipated, but which require further treatment and shoreside vocational therapy to rehabilitate for sea duty. b. Presents severe psychiatric disorders from which clinical and vocational recovery is considered unlikely, such as certain psychoses, severe psychoneuroses, organic diseases, and severe personality disorders.	

industry: First, when a jobseeker applies as a new worker in the industry; and second, when, because of injury, disease, or degenerative process, a question is raised as to whether the seaman is physically fit to continue his present seagoing occupation.

Applicants for Ordinary Seaman and other ratings will vary in their physical strength, stamina, functional capacities, emotional stability, as well as having different occupational abilities and talents. Similarly, occupations aboard ship show wide differences both in physical demands and the kind and degree of skills needed. The physical demands of these occupations are governed by three factors: the requirements of Safety at Sea, life and living conditions aboard ship, and the actual demands in the job tasks to be performed. The first two of these factors, which characterize the working environment in the maritime industry, are somewhat uniform for all occupations, hence affect all workers. For this reason, a general description of life and work at sea together with the variations in physical demands which arise from job factors and the factors of safety and environment, is included. The demands of each homogeneous group of jobs are expressed in terms of the physical profiling system described below.

THE PROFILING SYSTEM

The profiling system was selected from among a number of personnel devices as a technique which would summarize concisely the physical capacities of workers and the physical demands of jobs, thus enabling the approving authority to compare the two sets of information and to make a proper decision regarding the physical suitability of the candidate for a specific rating. A special system to be known by the mnemonic "SAILORS," was devised for this purpose. As may be seen, each letter represents 1 of 7 factors in the rating scale. These factors are as follows:

- S—Overall strength and stamina
- A—Strength of arms, shoulders, neck
- I—Incapacitating diseases or conditions which would preclude employment
- L—Strength of legs, hips, and back
- O—Observational powers (vision)
- R—Reception of sound (hearing)
- S—Stability

Each of the above factors has been assigned degrees which reflect the amounts of strength, vision, etc., which are involved.

The rating scale is applied both to the job candidate and to the various jobs in the merchant marine. The former is accomplished by means of a medical examination and any medical information which may be available. The candidate is then assigned a serial profile which defines his capacities in each of the seven areas measured. Physical profiles were developed for job categories aboard vessels by analyzing the duties and estimating the physical demands they make upon the worker. The approving authority, upon receiving a candidate's profile, will compare it with those established for various positions and reach a conclusion regarding the fitness of a worker for them.

A complete description of the profiling system appears in table I. It will be observed that for each factor, the major physical activities to be considered are listed. The duration and intensity are represented by statements of degree in descending order. The number of degrees vary for the different factors. For *Strength, Arms, and Legs*, the determination of degree will necessarily be made subjectively both as regards job and worker. For *Observation Powers and Reception of Sound*, definite physical standards have been prescribed which are measurable in a job candidate. The de-

mands of the job in this respect, however, must be estimated.

The profiling system has the advantage of simplicity. It provides a uniform terminology for both the physician and the approving authority and expresses medical findings in terms of ability to perform functions. Its limitations, too, need to be recognized. The profile is merely a summary device. It does not give all the details. Therefore, it should be used as an initial screen for determining suitability for specific jobs. Further study of the medical findings and the job demands will often be necessary to reach a final determination of suitability.

DEFINITIONS OF TERMS USED IN PROFILING SYSTEM

HEAVY WORK: Lifting, carrying, pushing, pulling 100 pounds maximum with frequent lifting, etc., of objects weighing up to 50 pounds.

MODERATE WORK: Lifting, carrying, pushing, pulling 50 pounds maximum with frequent lifting, etc., of objects weighing up to 25 pounds.

LONG PERIODS: Over 24 hours.

MODERATE PERIODS: Under 24 hours.

ADVERSE AND MODERATE CONDITIONS: In determining whether conditions are adverse or moderate, the following considerations are involved:

1. The degree to which the worker will be exposed to these environmental conditions—

a. Extremes of heat and cold for moderate or long periods.

b. Excessive vessel motion, such as rolling, pitching, and pounding.

c. Continued shipping of water over vessel's decks and hatches.

d. High noise levels.

e. Navigating vessel in confined waters during poor visibility for long periods.

f. Local conditions—excessive insect life, loading and discharge of nauseous cargos, such as raw hides, lampblack, etc.

2. The conditions listed above are all considered adverse. However, if encoun-

SUMMARY

	S	A	I	L	O	R	S
1. MASTERS, MATES, AND PILOTS	2	2	1	2	1	2	1
2. RADIO OFFICERS	4	2	1	2	3	3	1
3. ABLE SEAMAN, QUARTERMASTER, LIFEBOATMAN	1	1	1	1	1	1	1
4. ORDINARY SEAMAN, WIPERS, ASSISTANT ELECTRICIAN	1	2	1	2	3	3	1
5. STAFF OFFICERS	4	2	1	2	4	3	1
6. ENGINEERING OFFICERS	2	2	1	2	2	2	1
7. QMED (WATCHSTANDER)	1	1	1	1	2	2	1
8. QMED (NONWATCHSTANDER)	2	2	1	2	3	3	1
9. MAINTENANCE DECK	1	1	1	1	3	3	1
10. STEWARDS' DEPARTMENT	3	2	1	2	4	3	1

tered for periods of short duration, they could be considered moderate. Therefore, it would appear that the time element must be considered in the use of these two terms.

BALANCING: Walking, standing, or running on narrow or slippery elevated surfaces by maintaining body equilibrium to prevent falling.

CLIMBING: Ascending or descending ladders, scaffolding, poles, ropes, and the like, using hands and arms as well as feet.

CRAWLING: Moving about on the hands and knees or hands and feet.

STOOPING: Bending the body downward and forward by bending the spine only.

CROUCHING: Bending the body downward and forward by bending the legs and spine.

KNEELING: Bending the legs at the knees, coming to rest on the knees.

REACHING: Extending the hands and arms in any direction.

LIFTING: Raising or lowering an object from one level to another.

CARRYING: Transporting an object, usually by holding it in the hands and arms.

PUSHING: Exerting force upon an object so that the object moves away from the force, including slapping, striking, kicking, and treadle actions.

PULLING: Exerting force upon an object so that the object moves toward the force, including jerking.

HANDLING: Seizing, holding, grasping, turning, or otherwise working with the whole hand or arm.

FINGERING: Picking, pinching, or otherwise working with the fingers primarily (rather than with the whole hand or arm, as in handling).

FEELING: Perceiving such attributes of objects as size, shape, temperature, or quality, by means of receptors in the skin, typically those of the fingertips.

ATTACHMENT "B"

PHYSICAL REQUIREMENTS, STATUTORY AUTHORITY FOR

OFFICER:

Original license:

Master—46 U.S.C. 226.

Mates—46 U.S.C. 228.

Engineers—46 U.S.C. 229.

Pilot—46 U.S.C. 214.

All officers—46 U.S.C. 224

(a) Officers Comp. Act.

CFR 10.02-5 (e) (original).

CFR 10.02-7 (e) (2) (raise in grade).

Renewal—46 U.S.C. 225.

46 U.S.C. 233.

CFR 10.02-9.

RADIO OFFICER:

Public Law 525, Sec. 3.

46 U.S.C. 229c.

CFR 10.13-15.

CFR 10.13-23 (renewal).

AB:

46 U.S.C. 672 (a).

CFR 12.05-5.

LIFEBOATMAN:

CFR 12.10-7.

QMED:

46 U.S.C. 672 (e).

CFR 12.15-5.

TANKERMAN:

46 U.S.C. 391a (6) (b).

ENTRY RATINGS: (OS—wiper—coal passer) and Stewards' Department.

46 U.S.C. 672 (g)—No exam except FH.

STAFF OFFICER:

46 U.S.C. 243—No exam.

SELF-APPRAISAL

Every once in a while it does us good to appraise ourselves. If we are honest we can improve our lot and often make ourselves into the men we want to be. Nine questions which will help us in such a task follow.

1. Am I thoroughly familiar with the revised rules of the road?

2. Do I plot an approaching vessel which is seen on Radar so I can definitely determine its course, speed and intentions?

3. Can I quickly define or recognize Class A, B and C fires and do I know what type of extinguisher to use on each?

4. Could I administer the newer approved methods of Artificial Respiration if called upon to do so? Have I had sufficient practice as of right now?

5. Do I recognize the basic similarity between safety and good seamanship, and try to approach every job with that thought in mind?

6. In assigning a job to a crew member, do I point out the hazards to him and try to provide adequate supervision to prevent mishaps?

7. Do I try to correct poor working habits that come to my notice or do I just marvel at their occasional success?

8. Do I always "secure for sea—and let come what may"—or do I sometimes bank on a fair passage?

9. Did I honestly think out the answers to the other eight questions or skip it because of lack of real interest?

Courtesy—Safety News.

ANNUAL ANALYSIS OF REPORTS RECEIVED DURING THE PERIOD

Jan. 1, to Dec. 31, 1953

Approximate number of personnel employed: 70,000

Total reporting cards received: 50,023

	ILLNESSES											
	LICENSED				UNLICENSED					Long-shoremen	Passengers	Grand total
	Deck	Engine	Purser, Radio, Others	Total licensed	Deck	Engine	Steward	No rating	Total unlicensed			
Tuberculosis	13	22	5	40	61	77	74	15	227	0	3	270
Resp. Inf. (Non-TB)	172	243	50	465	1,130	745	900	48	2,823	30	15	3,333
Veneral	12	36	5	53	583	369	279	19	1,250	0	1	1,304
Urinary	28	33	11	72	229	160	210	14	622	7	1	702
Cardiovascular	41	63	15	119	133	133	209	31	506	12	13	630
Arthritis, etc.	31	50	10	91	215	191	285	22	713	28	4	836
Psychoneurosis	14	17	9	40	94	85	94	11	284	1	6	331
Epilepsy	4	8	0	12	25	22	84	4	85	3	0	100
Alcoholism—Drugs	2	2	1	5	38	26	20	2	105	1	0	111
Suicide	0	2	0	2	1	5	5	2	13	0	1	16
Ulcers—internal	16	27	4	47	101	92	117	10	320	1	2	370
Ulcers—external	30	51	9	90	214	159	189	16	578	15	3	686
Gastro intestinal	114	188	39	341	870	740	771	46	2,427	14	16	2,798
Skin	56	117	27	200	573	583	400	21	1,577	61	5	1,843
Ears	38	58	12	108	222	176	119	14	531	231	0	870
Eyes	27	55	17	99	234	187	195	16	632	39	0	770
Teeth	55	74	14	143	498	326	349	13	1,186	1	2	1,332
Contag. Dis. (Non-VD)	2	6	0	8	11	11	4	4	30	0	1	39
Cancer and Tumor	0	11	1	12	16	16	24	6	62	0	0	74
Miscellaneous illnesses	189	321	54	564	1,506	1,109	1,285	104	3,994	160	32	4,740
Fainted—Dizzy	11	16	3	30	43	46	35	2	126	5	2	163
Fatal	4	8	6	18	14	11	9	7	41	1	4	64
Total	859	1,408	292	2,559	6,811	5,288	5,596	427	18,122	610	111	21,403



nautical queries

FOLLOW THE RULES

DECK

Q. How is the radio operator of a tanker constantly warned against the use of his equipment while inflammable cargo is being transferred?

A. A sign should be placed in the radio room warning him against the use of radio equipment, except by permission of the senior deck officer, during transfer of Grade A, B, or C liquids.

Q. What is the usual amount of chain used by vessels when anchoring and what factors are used in determining this amount?

A. The usual amount of cable used is 5 to 7 times the depth of water; dependent on such factors as nature of bottom, present and anticipated weather, tidal and current conditions, the state of readiness of the ship's powerplant, the draft, the amount of exposed hull and superstructure, and the length of stay at anchor.

Q. What care should be given anchor chain cable?

A. Anchor chain cable should be ranged at regular intervals and examined for bad links, slack detachable links, and signs of excessive wear. It is considered good practice to occasionally shift the shots about in the chain to insure even wear. The chains may also be sprayed with a preservative such as fish oil at this time.

Q. How may 'tweendeck drains in a cargo hold be checked to determine if they are functioning properly?

A. 'Tweendeck drains may be checked by pouring water into the drains, and then noting if it runs through to the drain well or bilge in the hold.

Q. What precautions should be taken when stowing goods which are susceptible to damage from chafing?

A. Sufficient mats, burlap, or other material should be used to protect such goods as they are stowed. Consideration should also be given in stowing them so that the possibility of movement is reduced to a minimum.

Q. Why is it inadvisable to stow cargoes susceptible to heat damage on top of tanks carrying fuel oil?

A. Since the oil in such tanks may require heating to reduce its viscosity in order that it may be pumped, it is inadvisable to stow cargo susceptible to heat damage on such tank tops.

Q. a. A vessel taking a heavy deck cargo checks her stability by lifting a weight of 50 tons with her heavy lift boom 40 feet from the centerline. The displacement, including the weight lifted, is 10,000 tons. The angle of list caused by the suspended weight is 3°. What is the GM of the vessel corresponding to this condition?

b. When the weight has been placed on deck twenty (20) feet below the boomhead, what is the GM?

A. a.

$$GM = \frac{w \times d}{w} \cot \text{Angle of List.}$$

$$GM = \frac{50 \times 40}{10,000}$$

$$\cot 3^\circ = \frac{1}{2} \cot \text{ of the Angle of List} =$$

$$\frac{19,081}{5} = 3.8 \text{ feet.}$$

b.

$$GG_1 = \frac{w \times d}{\text{displacement}}$$

$$GG_1 = \frac{50 \times 20}{10,000} = 1/10 \text{ or } 0.1.$$

GM will then be $3.8 + 0.1 = 3.9$ feet.

ENGINE

Q. Outline the proper procedure for adding a charge of Freon-12 to the refrigeration system.

A. 1. Tilt the Freon-12 drum with the valve end down and loosely connect the charging line to the charging valve in the liquid line between the receiver and the expansion valves.

2. Crack the valve on the drum; blow out the air in the charging line; tighten the connections and test for leaks.

3. Close the main liquid valve on the outlet of the receiver and close the dehydrator by-pass valve.

4. With the compressor running normally, open the dehydrator valves and the charging valves. Charge through the dehydrator until the liquid reaches the proper level in the receiver.

Q. What are the indications of faulty Freon-12 compressor valves?

A. Faulty compressor valves may be indicated by either a gradual or sudden decrease in the normal compressor capacity. This will cause the compressor to run for abnormally long periods or even continuously, and may be accompanied by low head pressures and high suction pressures.

Requests continue to be received for obsolete publications on the Rules of the Road, and reports from field offices indicate at times there appears to be an alarming disregard of the proper rules while navigating, especially on the part of both pleasure and commercial small craft.

For this reason attention is again called to the fact that because of the revision of the International Rules, which became effective January 1, 1954, and also because of various amendments to the Inland Rules, many publications and textbooks on this subject may be obsolete. It would appear that some of these publications, however, are still being used, incredible as it may seem.

It cannot be recommended too strongly therefore that all textbooks and publications on this subject be carefully examined to determine whether or not they are up to date.

The only publications issued by the Coast Guard regarding the Rules of the Road are the three pamphlets: CG-169, CG-172, and CG-184, covering the International Rules to prevent collisions and pilot rules for the Inland Waters, the Great Lakes, and the Western Rivers, respectively. Any other Coast Guard publications on this subject, such as the publication entitled "Comparative Rules of the Road and How To Obey Them," or any of the pamphlets mentioned with a date previous to those indicated below, should be discarded as obsolete. Only the following pamphlets are currently in effect:

CG-169, Rules To Prevent Collisions of Vessels and Pilot Rules for Certain Inland Waters of the Atlantic and Pacific Coast, and of the Coast of the Gulf of Mexico, dated September 1, 1953.

CG-172, Pilot Rules for the Great Lakes and Their Connecting and Tributary Waters and the St. Mary's River, dated May 1, 1952.

CG-184, Pilot Rules for the Western Rivers and the Red River of the North, dated August 1, 1949.

DUE TO THE GREAT NUMBER OF CHANGES IN THE NAUTICAL RULES IN RECENT YEARS, IT IS IMPORTANT THAT ONLY THESE PUBLICATIONS OR AN UP-TO-DATE TEXT ON THIS SUBJECT BE USED FOR REFERENCE. PUBLICATIONS WHICH DO NOT CONTAIN CURRENT RULES TO PREVENT COLLISIONS AND PILOT RULES ARE A HAZARD TO SAFE NAVIGATION AND SHOULD BE DISCARDED IMMEDIATELY.

LESSONS FROM CASUALTIES

FORCED LANDING

Navigating on the Great Lakes, or "Sailing" as it is known on the Great Inland Seas, has one major difference from navigating on salt water. On the Great Lakes you are almost always in Pilot Waters and therefore there is always a lee shore not too far away. The deck officers are licensed as master and pilot, or pilot, and for good reason. Any vessel making leeway is heading for trouble. It sometimes happens that the large bulk freighters on the Great Lakes sailing in a light condition with a tremendous area of vessel side exposed to the wind are blown sidewise and cannot straighten out or bring the ship under control before they are in severe straits. The circumstance of being "blown around," that is, a light vessel blown so far off its heading that it can only come all the way around on an opposite rudder to get back to its original heading, is well known on the lakes. With 600 feet of hull exposed to the wind and shaft horsepower of 2,000 or less available on some of the older vessels, it is easy to understand how this can happen.

Recently a 45-year-old Great Lakes freighter, 530 feet long, with 2,100 horsepower, demonstrated how a master with many years of successful operation under his belt can get into a first-class jam when the wind and sea are just right (or just wrong). This freighter sailed light from the Lower Lakes and headed for a port on Lake Superior to load iron ore. Her voyage ended on a beach just a few miles from the destination (see fig. 1), with a repair bill of over \$150,000. All of the crew were safely removed from the vessel, but it is rumored that many of them aged 10 years in the process.

It was early fall, weather reports for Lake Superior indicated heavy winds but not any of gale force. All was

well as the ship steamed out of Whitefish Bay and entered Lake Superior. Shortly after midnight the wind was fresh from the north with clear skies. About 4 a. m. as the wind grew stronger, course was changed 90° to the starboard to head directly into the wind and sea. One hour later, speed was reduced to three-quarters to ease the pounding. About 6:15 a. m., with the wind and sea slightly on the starboard bow, it was noted that the vessel's head was falling off to leeward or to the port.

The master signaled for full power and maneuvered on hard right rudder attempting to bring his head back into the sea. During these maneuvers the freighter shipped considerable "green water" and rolled heavily. Very shortly the first mate noticed that some leaves of the sliding hatch covers had come loose on No. 1 hatch and fallen into the cargo hold and that other leaves had broken loose on hatches Nos. 11 and 30 and were lying on deck. The master ordered all hands out to secure the hatch covers as solid water was entering the holds. Hatch covers on Nos. 11 and 30 were secured, but there was from 3 to 5 feet of free water in hold No. 3. This was the low point of the cargo holds into which water in the forward holds drains. Screen bulkheads dividing cargo holds on Great Lakes freighters are not required to be watertight and on many of the older vessels there are drain holes at the bottom of these bulkheads.

During the process of securing the hatches, the master had slowed to one-half speed, or about 6 miles per hour, on a southerly heading for about 40 minutes to make a lee for the men to work on deck. While this was necessary, it meant that the vessel was heading for the lee shore at an alarming rate.

The navigation of the vessel by dead reckoning during this confused period of maneuvering left much to be desired and it is certain that neither the master nor the mate knew just how far off shore the vessel was wallowing. As soon as the hatches were secured another attempt was made to bring the vessel's head up into the sea. She would not come around but continued in a westerly direction in the trough of the sea with a wind of practically gale force on the light starboard bow. With hard right rudder and full ahead power, the ill-fated freighter continued in a crabbing fashion, making considerable leeway and relatively little headway.

About this time the master called other vessels in the vicinity by radiotelephone and reported that he was in danger of going ashore. A Coast Guard lifeboat station on the nearby shore intercepted the message, talked with the master, and prepared to stand by for assistance. Other Coast Guard cutters in the vicinity immediately headed for the vessel.

As the lumbering freighter drew within visual range of the beach, the master ordered all hands on deck with lifejackets and the mate stood by to drop both anchors. Since it appeared hopeless to bring the ship around, the master ordered both anchors let go. With the vessel drifting sidewise in the trough and with both anchor chains still running out, the ship fetched up on the shore about 100 yards from the water's edge. Heavy spray and water were coming over the deck and it was difficult to determine whether the vessel would remain where she was or whether the crew should abandon.

The master contacted the Coast Guard station and asked their help in removing the crew. By this time the Coast Guard beach crew already had gear set up near the place of stranding, and soon the first line was on board. Assisted by volunteers the Coast Guard started removing men from the ship by breeches buoy. As this rescue attempt was progressing, a Coast Guard helicopter arrived on the scene from the air station, after a hazardous and difficult flight of 180 miles, part of which was over water. Two helicopters had been dispatched, but due to the storm turbulence and severe headwinds encountered, one craft ran short of fuel, and landed at an airport where it was found that proper fuel was not available. With both pilots in one helicopter, it took off and arrived at the scene only to discover that helicopter operations

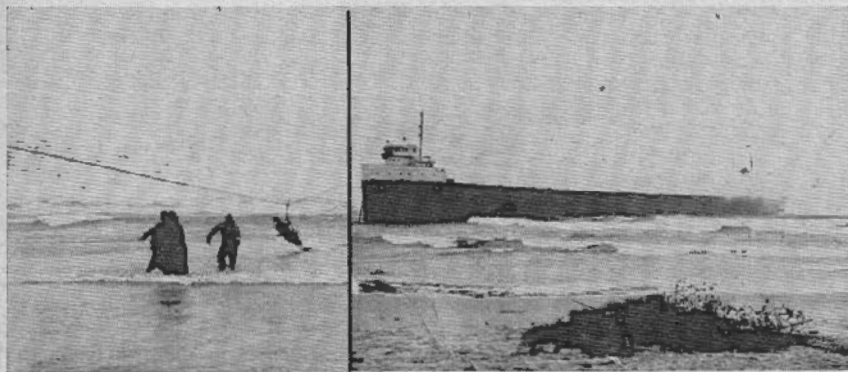


Figure 1.

were next to impossible due to heavy seas breaking over the wreck. However, with both pilots on the controls fighting against turbulent wind gusts of up to 70 miles per hour and heavy spray lashing the aircraft, the helicopter managed to hover close enough over the deck for men to be pulled aboard bodily. At times the spray was so dense the pilots could not see and had to be coned in their movements by the mechanic looking through the bottom hatch. In four trips the helicopter safely transferred 11 crew members to shore where first aid was available.

Shortly after noon all hands were safely on shore. The breeches buoy crew had brought in the other 21 men. There were no injuries except for a few sprained ankles and bruises. It later proved that the crew could have remained aboard, as the storm moderated shortly afterwards and the ship remained in a safe upright position. However, this could not be foreseen, and abandonment of the ship seemed the wisest choice of action at the time of the greatest peril.

In spite of the serious bottom damage and buffeting received from wind and sea, the freighter was refloated 5 days later with the assistance of a salvage tug and the powerful ice-breaker, the USCGC MACKINAW. She was towed and escorted to the nearest shipyard where hull repairs were made.

Was this grounding inevitable? This is a question which could be argued for months with no positive conclusion. The obvious answer would seem to be that it was not, since many other vessels have gone through similar circumstances with safety. (There is an old proverb credited to some of the early Finnish sailors on Lake Superior, "When ships get in trouble on the water, there are many wise men on shore.") The above conclusion leads only to the question of what specific action should have been taken, and what action should not have been taken. Materially, the condition and performance of the freighter were satisfactory. There were no failures. Therefore, such fault as can be imputed must be attributed to personnel error or negligence.

It was argued that if the anchors had been dropped sooner the grounding might have been avoided. It appears, however, that the visibility was very poor and the shoreline was not seen until just before the anchors were dropped. The vessel was not equipped with a fathometer, and the extreme weather conditions made it nearly impossible to use the sounding machine. Therefore, since the vessel's position just before grounding was

extremely uncertain, the above argument is most difficult to prove and is conjectural at best.

It was argued that good seamanship should have dictated the seeking of shelter much earlier, or remaining in Whitefish Bay until weather conditions improved. Again, the weather reports available to the master early on that morning did not truly reflect the severity of the conditions which were later encountered.

It was argued that the vessel would probably have remained off the beach several hours longer if the master had attempted to back her into the sea and that this action might have prevented the grounding inasmuch as the storm was of short duration. This theory is susceptible to the counterargument that the backing of a vessel with a very broad and bluff stern into heavy seas could have resulted in considerable damage to the hull including, perhaps, the loss of the rudder and/or wheel, the consequences of which might well have been worse than what actually happened.

It was argued that had all the hatches been battened down with tarpaulins, the vessel would not have had to run before the wind and toward the lee shore for approximately 40 minutes. This conclusion seems to be indisputable; however, many vessels had passed safely through similar circumstances without tarpaulins on the hatches.

While no specific fault or failure on the part of the master can be pinpointed, it would seem obvious that this vessel could have been brought through this trial without grounding by more skillful handling, better fore-

sight, judgment, and seamanship. Although all of the circumstances seemed to unite and overwhelm the men fighting the gale that day, many veteran Great Lakes skippers would agree that proper judgment and skill would have prevented the uniting of these circumstances.

† † †

FIRE PROTECTION—ONE NIGHT WATCHMAN

Fire protection engineers have long been puzzled by the quirk in human nature whereby highly successful men of considerable intelligence who have built up extensive plants through years of effort, sometimes involving millions of dollars and incorporating all of the latest safety devices, will go home at night and leave the entire plant under the protection of an unqualified night watchman.

Often the entire operation of a complicated and expensive fire protection system will depend upon the alertness and intelligence of one man who, all too often, is equipped neither physically nor mentally to cope with large-scale emergencies. On the other hand, many disastrous fires or explosions have destroyed entire plants which were extensively protected by fire-detection systems and automatic-sprinkler systems, and it was later proved that the whole system had been rendered inoperable by someone carelessly or foolishly closing a valve, pulling a switch, or forgetting something that he was supposed to remember. Valuable plants have been lost when sprinkler control valves were



Figure 2.

closed for convenience and left closed accidentally or purposely. A casualty in which a 260-ton ferryboat was nearly lost due to fire, although protected to a large degree by a sprinkler system, occurred recently, and it became apparent that the sprinkler system was not usable at the time.

The ferry was moored for the night at a dock which was not near any municipal fire department or fire main system. Only one watchman remained aboard and he was also in charge of a similar vessel moored nearby. The open sprinkler system which protected the overhead of the main cargo deck, and the deck itself was empty and the fire pump was secured as was all machinery on board. An emergency lighting system operated from a bank of batteries located in the engine room. There was no source of water pressure available on board the vessel or on shore.

About 12:40 a. m. the night watchman noticed smoke. He immediately searched for the source and discovered flames in the vicinity of one of the wooden stairways rising from the main deck to the upper deck. He called to a nearby barge watchman for help and ran ashore to telephone nearby smalltown volunteer firefighters. Before any fire departments arrived, the master and chief engineer of the other small ferry, who fortunately lived nearby, arrived at the landing and got the other vessel underway. Already one of the lifeboats was afire and other parts of the superstructure was smoldering. This ferry was able to back out into the stream and the master extinguished all fire aboard with a fire hose as soon as the chief engineer had started the fire pump. This vessel then returned to the mooring and assisted the volunteer fire departments, who by that time had arrived, in fighting the fire on the other ferry. About 3½ hours after the fire started it was completely extinguished by the use of the fire pumps and hoses from the operable ferry and the shore fire apparatus. No one was injured.

The upper deck of the ferry where the fire originated was completely destroyed (see fig. 2), although the protection afforded by the sprinkler system, if it was in operation, would have prevented, to a large extent, combustion on this deck. The fire probably started in the vicinity of the purser's office under the wooden stairway. All of the immediate vicinity was of wooden construction. Source of ignition could not be definitely ascertained, but a carelessly discarded cigarette is the most likely explanation. Since all of the main electrical circuits were dead, with the powerplant secured, ignition from faulty wiring

or electrical overheating was highly improbable.

The immediate area where the fire started was not protected by the sprinkler system. However, had some means been provided to start the fire pump and pressurize the sprinkling system, the flow of water and its cooling effect might well have delayed the spread of the fire on the upper deck until firefighting help arrived. The shutdown of all machinery during the night with only a watchman aboard, at a mooring where no firefighting help was available, completely neutralized all of the built-in protective equipment. If the fire pump could have been started, fire hoses could have been used to extinguish the flames even if the sprinkler system was entirely inoperative or ineffective.

Here was a valuable property, with expensive protective equipment provided, left with no protection at all. The value of the night watchman is open to considerable doubt since, when he did discover the fire, there was little he could do about it except call for the help which was a long distance away. The solution to this weak link in the chain of safety and protection for this vessel would appear to be either to provide standby shore power and an electrical fire pump which would cut-in automatically, or to provide a night watchman who is qualified and capable of starting the fire pump and whatever other machinery is necessary, and capable of using the firefighting equipment provided. With two such vessels regularly laid up overnight at this same remote location, provision for such firefighting protection on at least one of the vessels would seem an absolute must.

† † †

MARINE SECTION, NATIONAL SAFETY COUNCIL

(Continued from page 190)

a few extracts and summations follow:

Mr. Richmond K. Kelly, vice president of Tide Water Associated Oil Co., in his paper on safety in deep-sea-tanker operation, quoted figures to show that accidents on tankers are not confined to any particular age group. He also indicated that an even 26 percent of all accidents last year on Tide Water Associated vessels were caused by slipping.

In another paper on making ship-board safety work, Charles H. McGuire, National Shipping Authority director, stated that slips and falls accounted for 300 of the 1,200 accidents reported on NSA ships in 1953.

Today's safety program for ocean-going vessels has been tailored to fit a situation in which rapid turnover of officer and unlicensed personnel is the rule, and not, as before World War II, the exception. This was reported by two Delta Line officials from New Orleans—Capt. Harvey B. Powell, safety director, and Mr. August R. Duplaa, claims representative of the gulf ship line. In a joint paper they stated that this increase in turnover "is a major factor in the increase of lost-time accidents."

Mr. John B. Garbutt, manager of claims and insurance for the Great Lakes Towing Co., spoke on how the port of Cleveland has recently set up a program that should materially cut marine casualties. This program requires vessels bound for the harbor to call into one of two traffic control points indicating their estimated time of arrival and designated dock. Since the program was started, there have been no "passing casualties" reported in Cleveland.

The active participation by steamship companies in cargo-handling accident prevention was discussed by Mr. Stanley G. Coppel, executive vice president, Pacific Transport Lines, and Joseph H. Travers, manager of the Accident Prevention Bureau, Pacific Maritime Association.

Other talks given at the second ship operator's session included one by Rear Adm. Redfield Mason, USN, Commander, Atlantic Area, Military Sea Transportation Service, on "Recent Crew Casualties While in Ship-yards." Mr. M. C. Dupree, transportation manager, Ashland Oil and Refining Co., spoke on "Promoting Planned Accident Prevention on the Inland Waterways," and Capt. Ronald MacKenzie, of the Grace Line, delivered a paper on "Protecting Passengers From Accidents."

Four safety awards were announced at this year's meeting. A special citation for meritorious service in the interest of maritime safety was presented to Frank Miller, assistant manager of the Operating Division of the Esso Shipping Company. The other three awards presented were for outstanding papers and went to Elijah Baker, Newport News Shipbuilding and Drydock Co., Capt. Ralph Mock, safety director of Lykes Steamship; and W. N. Damonte, vice president and manager of the Marine Department of Sinclair Refining Co.

At the annual business meeting Mr. John D. Rogers, vice president, Esso Shipping Co., and Mr. Harry X. Kelly, president, Mississippi Shipping Co., were named general chairman and executive general chairman, of the Marine Section, National Safety Council, respectively.

AMENDMENTS TO REGULATIONS

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

DEPARTMENT OF THE TREASURY

United States Coast Guard

[CGFR 54-41]

PERSON INVOLVED IN CERTAIN NARCOTIC VIOLATIONS OR WHO IS USER OF OR ADDICTED TO USE OF NARCOTIC DRUGS

DENIAL OR REVOCATION OF SEAMAN'S DOCUMENTS

The provisions of Public Law 500, 83d Congress, 68 Stat. 484, approved July 15, 1954, which provides for the revocation of merchant marine documents to persons involved in certain narcotic violations, may be found in Federal Register of Saturday, October 16, 1954.

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

Subchapter P—Manning of Vessels

[CGFR 54-43]

PART 157—MANNING REQUIREMENTS

ENFORCEMENT OF OFFICERS' COMPETENCY CERTIFICATES CONVENTION, 1936

New regulations designated 46 CFR Subpart 157.18, containing §§ 157.18-1 to 157.18-15, inclusive, regarding enforcement of the Officers' Competency Certificates Convention, 1936, were promulgated by the Commandant, United States Coast Guard, on December 15, 1953, and published in the Federal Register dated December 19, 1953 (18 F. R. 8582), which became effective on and after January 18, 1954. These regulations required that every master or person in charge of a vessel subject to R. S. 4438a, as amended (46 U. S. C. 224a), or the Officers' Competency Certificates Convention, 1936, shall file with the Collector of Customs a complete list of the officers employed aboard the vessel upon application for final clearance for a foreign port or for an application for a permit to touch and trade.

Article 5 of the Officers' Competency Certificates Convention, 1936, sets

forth provisions for enforcement. The regulations in 46 CFR 157.18-1 to 157.18-15 established procedures considered necessary for enforcement of this Convention on vessels of the United States subject to the provisions of R. S. 4438a and vessels of other countries which have ratified the Convention. The application of these regulations to vessels of other countries which have ratified the Officers' Competency Certificates Convention, 1936, is no longer necessary because such countries have adequate measures to enforce the Convention insofar as vessels registered in their territories are concerned. Therefore, the Coast Guard will no longer require the master or person in charge of a foreign vessel subject to the Officers' Competency Certificates Convention to file with the Collector of Customs a complete list of officers employed aboard the vessel.

The requirements for vessels of the United States subject to the provisions of R. S. 4438a, as amended (46 U. S. C. 224a), have not been changed and are necessary to carry out the obligations imposed upon the United States as a signatory member to the Officers' Competency Certificates Convention.

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Treasury Department Order No. 120, dated July 31, 1950 (15 F. R. 6521), to promulgate rules and regulations in accordance with the statutes cited with the regulations below, the following amendments to §§ 157.18-1 to 157.18-15, inclusive, are prescribed which shall become effective on and after the date of publication of this document in the Federal Register. [Federal Register of Tuesday, Oct. 19, 1954.]

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 6-54

22 September 1954

Subj: Typical Class A-60, A-30, A-15, and A-0 Bulkheads and Decks.

1. *Purpose.* This circular provides the information required by shipbuilders, and others concerned, for the application of approved insulation, bulkhead panels, and deck coverings to achieve the various structural fire protection classifications for steel bulkheads and decks required by subpart 72.05 of subchapter H (Passenger Vessels).

2. *Circular canceled.* Navigation and Vessel Inspection Circular No.

10-47, dated 24 October 1947, is hereby canceled.

3. *Scope.* There are enclosed * sketches showing diagrammatically the type, thickness, and relative position of materials necessary to meet Class A-60, A-30, and A-15 requirements. Class A-0 construction is not included since no insulation is required on structural steel bulkheads or decks to meet these requirements. The indicated thicknesses of approved materials are minimums. Since it is obviously impossible to anticipate all of the combinations of materials which might be used, approval will be given to arrangements differing from the enclosed sketches, if equivalent integrity and heat transmission qualities are provided.

4. *Requirements.* Care should be taken in applying materials other than those required. Additional approved bulkhead panel material, structural insulation, deck covering, or incombustible material may be used without restriction provided the integrity of the construction is not affected. Combustible trims and veneers may be used where permitted by the regulations, but may perform no structural function and may not be used to maintain the integrity of the construction. Deck overlays, such as rubber tile, linoleum, etc., not exceeding 3/8" in thickness, may be applied over the required deck construction. Such overlays need not be approved.

5. *Lists of Approved Insulation and Incombustible Material.* The approved structural insulations, bulkhead panels, and incombustible materials may be found listed in the latest issue of "Equipment Lists", CG-190.

H. C. SHEPHEARD,
Rear Admiral, USCG,
Chief, Office of Merchant Marine Safety.

By direction of the Commandant.

EQUIPMENT APPROVED BY THE COMMANDANT

Editor's Note: Due to space limitations, it is not possible to publish the documents regarding approvals and terminations of approvals of equipment published in the Federal Register dated October 6, 1954 (CGFR 54-

* Space limitations do not permit reprinting the sketches mentioned in this circular. Copies of the complete NVIC may be obtained from the local Officer in Charge, Marine Inspection.

39-CGFR 54-40). Copies of these documents may be obtained from the Superintendent of Documents, Washington 25, D. C.

AFFIDAVITS

The following affidavits were accepted during the period from 15 September to 15 October 1954:

Reading Tube Corp., Empire State Building, New York 1, N. Y., Pipe and Tubing.

De Sanno Foundry & Machine Co., Oakland, Calif., Fittings.

✂ ✂ ✂

THE BOLT PUSHER

We have a second electrician on one of our West African ships who does not need to carry a full complement of tools. That's because he is equipped with 9½ built-in bolt pushers.

Should we detect a slight raising of the left eyebrow, let us hasten to explain. Having just discovered what bolt pushers are ourselves, we are anxious to impart this knowledge to others, and shall now proceed to do so—but let us do it in our own way.

We'll start with a job our electrician had to do, which was unshipping a fan coupling. Having removed the nuts, he found that the weight of the coupling rested on the bolts, making them rather difficult to dislodge. As this indicated the need of a bolt pusher, he furnished same from his built-in stock—and one bolt after another was removed with neatness and dispatch until the last bolt was reached.

The last bolt, of course, was holding the weight of the fan, and after it was out it was only natural for the weight to remain on that part of the bolt pusher protruding through the hole. This was bad, for the bolt pusher was never made to sustain such weight, and its tip was neatly severed.

That's why our hero only has 9½ bolt pushers left, and if he ever becomes envious of his friends who still have 10 fingers, here's a little thought to console him.

He can always get a 10 percent discount on his manicures in the future. Look at the money that he will save.

—Courtesy—Farrell Lines
Safety News



MERCHANT MARINE PERSONNEL STATISTICS

MERCHANT MARINE OFFICER LICENSES ISSUED

Quarter Ending 30 September 1954

DECK		
Grade	Original	Renewal
Master:		
Ocean	71	637
Coastwise	6	60
Great Lakes	7	8
B. S. & L.	20	117
Rivers	10	96
Radio officer licenses issued	16	463
Chief mate:		
Ocean	47	151
Coastwise	5	4
Mate:		
Great Lakes		
B. S. & L.	6	16
Rivers	17	35
Second mate:		
Ocean	49	118
Coastwise		1
Third mate:		
Ocean	141	98
Coastwise		3
Pilots:		
Great Lakes	4	16
B. S. & L.	136	42
Rivers	92	19
Master: Uninspected vessels	2	13
Mate: Uninspected vessels	5	1
Total	654	1,898
Grand total		2,532

ENGINEER

Grade	Original	Renewal
STEAM		
Chief engineer:		
Unlimited	57	589
Limited	10	149
First assistant engineer:		
Unlimited	56	242
Limited	2	20
Second assistant engineer:		
Unlimited	61	344
Limited		2
Third assistant engineer:		
Unlimited	150	268
Limited		2
MOTOR		
Chief engineer:		
Unlimited	9	120
Limited	33	149
First assistant engineer:		
Unlimited	4	22
Limited	14	24
Second assistant engineer:		
Unlimited	6	38
Limited	2	4
Third assistant engineer:		
Unlimited	152	426
Limited	1	10
Chief engineer: Uninspected vessels		
Assistant engineer: Uninspected vessels	11	8
	9	2
Total	586	2,419
Grand total		3,005

INVESTIGATING UNITS

Coast Guard merchant marine investigating units and merchant marine details investigated a total of 2,946 cases during the third quarter

ORIGINAL SEAMEN'S DOCUMENTS ISSUED

Quarter Ending 30 September 1954

Type of document	Atlantic coast	Gulf coast	Pacific coast	Great Lakes and rivers	Canal Zone	Total
Staff officer	57	20	19	4		100
Continuous discharge book	184	8				192
Merchant mariner's documents	1,187	516	929	900	1	3,533
AB any waters unlimited	158	34	135	19	1	347
AB any waters, 12 months	75	18	37	117		247
AB Great Lakes, 18 months	22	2	9	29		62
AB tugs and towboats, any waters			1			1
AB bays and sounds	2					2
AB seagoing barges						0
Lifeboatman	463	11	133	43	1	651
QMED	148	40	62	139		389
Radio operators			1	1		2
Certificate of service	1,077	506	905	863		3,351
Tankerman	6	26	2	37		71

12 months, vessels 500 gross tons or under, not carrying passengers.

NOTE.—The last 11 categories indicate number of endorsements made on United States merchant mariner's documents.

WAIVER OF MANNING REQUIREMENTS

Waivers	Atlantic coast	Gulf coast	Pacific coast	Great Lakes	Total
Deck officers substituted for higher ratings		2	1	5	8
Engine officers substituted for higher ratings		1	1	1	3
OS for AB					
Wiper or coalpassers for QMED	2			2	4
Total waivers	2	3	2	8	15
Number of vessels	2	3	2	6	13

NOTE.—In addition, individual waivers were granted to permit the employment of 12 able seamen holding certificates for "any waters—12 months" in excess of the 25 percent authorized by statute.

of 1954. From this number, hearings before examiners resulted involving 41 officers and 268 unlicensed men. In the case of officers, 2 licenses were revoked, 3 were suspended without probation, 9 were suspended with probation granted, 1 license was voluntarily surrendered, 9 cases were dismissed after hearing, and 3 hearings were closed with admonition. Of the unlicensed personnel, 23 documents were revoked, 26 were suspended without probation, 109 were suspended with probation granted, 62 documents were voluntarily surrendered, 24 hearings were closed with admonitions, and 40 cases were dismissed after hearing.

NUMBERED AND UNDOCUMENTED VESSELS

The table below gives the cumulative total of undocumented vessels numbered under the provisions of the Act of June 7, 1918, as amended (46 U. S. C. 288), in each Coast Guard district by Customs ports for the quarter ending 30 September 1954. Generally speaking, undocumented vessels are those machinery-propelled vessels of less than 5 net tons engaged in trade which by reason of tonnage are exempt from documentation. They also include all other vessels propelled in whole or in part by machinery which have not been issued marine documents by the Customs, owned in the United States and found on the navigable waters thereof.

Coast Guard District	Customs Port	Total
1 (Boston).....	(4) Boston.....	12,865
	(1) Portland, Maine.....	8,563
	(2) St. Albans.....	942
	(5) Providence.....	3,844
	Total.....	26,214
2 (St. Louis).....	(45) St. Louis.....	9,301
	(12) Pittsburgh.....	1,904
	(34) Pembina.....	72
	(35) Minneapolis.....	2,346
	(40) Indianapolis.....	4,194
	(42) Louisville.....	2,817
	(43) Memphis (part).....	5,654
	(46) Omaha (part).....	290
	(47) Denver.....	15
	Total.....	26,593
3 (New York).....	(10) New York.....	47,251
	(6) Bridgeport.....	9,250
	(11) Philadelphia.....	18,099
	Total.....	74,600
5 (Norfolk).....	(14) Norfolk.....	16,094
	(13) Baltimore.....	23,189
	(15) Wilmington, N. C.....	7,854
	Total.....	47,137
7 (Miami).....	(18) Tampa (part).....	23,938
	(16) Charleston.....	1,627
	(17) Savannah.....	2,974
	(49) San Juan.....	413
	(51) St. Thomas.....	94
	Total.....	29,046
8 (New Orleans).....	(20) New Orleans.....	19,989
	(18) Tampa (part).....	570
	(19) Mobile.....	7,458
	(21) Port Arthur.....	4,275
	(22) Galveston.....	7,992
	(23) Laredo.....	1,339
	(24) El Paso.....	13
	(43) Memphis (part).....	65
	Total.....	41,701
9 (Cleveland).....	(41) Cleveland.....	7,878
	(7) Ogdenburg.....	2,515
	(8) Rochester.....	5,121
	(9) Buffalo.....	4,897
	(36) Duluth.....	2,600
	(37) Milwaukee.....	3,021
	(38) Detroit.....	19,206
	(39) Chicago.....	6,629
	Total.....	52,467
11 (Long Beach).....	(27) Los Angeles.....	10,175
	(25) San Diego.....	1,936
	(26) Nogales.....	96
	Total.....	12,207
12 (San Francisco).....	(28) San Francisco.....	12,405
	Total.....	12,405
13 (Seattle).....	(30) Seattle.....	17,763
	(29) Portland, Oreg.....	8,673
	(33) Great Falls.....	489
	Total.....	26,925
14 (Honolulu).....	(32) Honolulu.....	3,044
	Total.....	3,044
17 (Juneau).....	(31) Juneau.....	7,440
	Total.....	7,440
Grand total.....		359,779

TOPICS OF THE TIMES¹

The Law and Stowaways. Who among us had not fancied himself, at some time in his life, a stowaway on a vessel bound for some romantic far-off place? Almost all of us, however, have this rather common form of the impulse "to get away from it all" under firm control. This is just as well, since the stowaway is a thoroughly unpopular fellow with ship officers, ship owners, immigration officials and the law itself. The author of a recent work on maritime law writes:

A stowaway is one who conceals himself on board a vessel about to leave port in order to obtain a free passage. He is not one of the ship's company and is not a seaman. He is, in fact, one who imposes himself upon the vessel by his wrongful act. The only duty the vessel owes him is to afford him humane treatment while he necessarily remains on board.

Some Brief Journeys. The time during which a stowaway "necessarily remains" aboard ship is likely to be brief indeed if the ship's master can help it. That this is so was recently emphasized by the dramatic mid-ocean transfer of a woman stowaway—who wanted to see if she would like Ireland—from the *Mauretania*, bound for Europe, to the inbound *Britannic*. Not long ago a Coast Guard hearing disclosed that the master of an American ship discovered three stowaways after the vessel left Kingston, Jamaica. He had them rowed in a small boat to Great Inagua Island in the Bahamas, where they "were assisted over the side," and left to swim and wade ashore. The Coast Guard examiner found that it was not uncommon for masters to put their uninvited guests ashore at places en route immediately after detection.

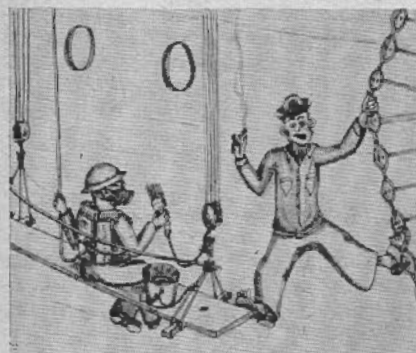
Knights of the Sea. In the hearing referred to, the Coast Guard Examiner declared:

There is no doubt that stowaways are trespassers endeavoring by their wits to travel free aboard ship in endeavor by devious means to gain entry into another country. It follows, therefore, that there can be no difference between the Knights of the Sea and the Knights of the Road and the law as established with respect to trespassers is applicable in like fashion to both classes of adventurers * * * that the only duty owed * * * to abstain from wanton or reckless injury to them.

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Penalties for All. The aversion which ship's officers display toward the stowaway does not arise from any basic trait of inhospitality. It stems from the knowledge that under federal statutes severe penalties may be meted out to all who participate in bringing the alien stowaway to our shores. "The owner, charterer, agent, consignee, commanding officer or master of any vessel" may be liable under our law. Thus shipping companies may quickly "put on the carpet any of their skippers * * * for permitting his ship to depart any port with a stowaway aboard without being detected by the search which the ship's officers are required to make before the ship leaves port." In a case where the mate of a vessel failed to reveal the presence of a stowaway he knew to be aboard, the ship was permitted to deduct from his wages a penalty subsequently levied against it.

See Your Travel Agent. After being detected, and pending his removal from the vessel, the stowaway may be assigned light shipboard duties as a measure of payment for his maintenance. But his performance of these duties does not make him a member of the crew. Here the intruder gains a legal advantage of questionable value. Should he succeed in leading an uprising against the ship's officers, it would seem that a formal charge of revolt and mutiny would not stand up against him. Under our statute only members of the crew may commit the crime of mutiny. But here the stowaway may confront the problem of Scylla and Charybdis—in avoiding the charge of mutiny, he invites one of piracy. In any case, merely by becoming a stowaway, he faces the possibility of paying a \$1,000 fine or serving up to 1 year in prison, or both. Clearly, there is more than meets the eye in the widely advertised advice to "see your travel agent."



I'M BEHIND THIS SAFETY STUFF 100%
—Main

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STRAPLESS

The tropical night hung heavily over the vessel. There was almost no breeze on deck and none at all in the pilothouse where the windows were all securely fastened.

This combination of a warm tropical evening and an unventilated pilothouse was too much for the helmsman and he decided to do something about it. He began to open the windows. He succeeded with the first and second windows after a considerable amount of banging and pushing. While he was working on the third one his hand slipped. The window dropped down out of control and mashed off the end of one of his fingers.

Why did this happen? The reason is simple. The leather hand straps which at one time had been attached to these windows had long since been worn out and broken. No one had thought of replacing them and without the straps it was difficult to control the lowering of the windows to their open position.

It was not all the helmsman's fault that this accident occurred. He couldn't have prevented the warm weather and it was only good sense that led him to attempt to open the windows. True, he could have been a little more careful but some of the blame must be placed on the man responsible for keeping the windows in repair. Anybody handy with a sail needle could easily have made up canvas handles which would have served the same purpose as the original leather straps.

Does your vessel have a pilothouse on the flying bridge with similar windows? If so, are the windows free working and equipped with hand straps? If you aren't sure, check them. Beware of strapless windows.

Courtesy—State Marine Lines

The Merchant Marine Council gratefully acknowledges the many helpful ideas and constructive suggestions that have been received from the readers of the "Proceedings" during the past year and takes this opportunity to wish each and every member of the American Merchant Marine a most joyous and peaceful Christmas and successful New Year.