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FOR

UNITED STATES COAST GUARD

STATIONS

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U.S. Coast Guard Sta.

TREASURY DEPARTMENT
UNITED STATES COAST GUARD

INSTRUCTIONS

FOR

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1922

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CHAPTER I.

GENERAL INSTRUCTIONS.

1. The "Instructions for Coast Guard Stations" shall have the force and effect of regulations.

2. In these Instructions the term "out of commission" shall mean the period during which a majority of the station crew by order of Headquarters is discharged or granted leave of absence without pay. At all other times a station shall be considered as "in commission."

3. The officer in charge of a Coast Guard station shall be responsible for the proficiency of the crew in their various duties.

4. He shall keep on hand sufficient quantities of gasoline and lubricating oils for the station power boats in order that they may be ready at all times for instant and prolonged service. No excuse for a failure to have power boats available owing to the lack of these essentials will be accepted. He is enjoined to use economy in the expenditure of gasoline, but no restriction is placed upon such expenditure if the interests of the public service would suffer thereby.

5. He shall report in writing to Headquarters any serious accident to the station buildings, equipment, station boats, and motors, or any explosion of gasoline about the station premises or in any power boat, whether or not the same results in injury to any person, either connected with the Coast Guard or outside of it, or in damage to any boat or other property, private or public, setting forth the facts in detail, and shall make an entry of all such matters in the log.

6. Should additional assistance become imperatively necessary on occasion of a wreck when the station is in commission, he is authorized to employ such additional number of competent men as is absolutely needed, who will be entitled to receive such compensation as their services are reasonably worth, the period and value of their services to be stated and certified to by the officer in charge.

7. (1) When necessary to facilitate or hasten the conveyance of the boat or beach apparatus to the scene of a wreck, the officer in charge is authorized to secure the use of horses, carts, and other

for any other reason, to its destination or to the nearest port of entry in a lighter or other vessel before the arrival of a customs officer, making out and signing duplicate lighter manifests (customs blank No. 5913) of the cargo on board of such lighter or vessel, one of which he shall deliver to the master thereof and the other to the collector of the port to which the lighter or vessel is bound.

27. He shall exercise a watchful care over such portions of the cargo as may be landed or come on shore from stranded vessels, in order to preserve the same, as far as possible, for the owners thereof, as also to protect the revenue; and, with this in view, dutiable goods and valuable merchandise, other than combustibles or explosives, may, for security, be stored within the station; but the boat room must not be encumbered with articles which might prevent the instant availability of the apparatus.

28. He shall keep a close watch over motorboats and other small craft, to prevent violations of the motorboat, navigation and customs laws. For this purpose he shall, when practicable, board and examine such craft, to ascertain whether they are properly documented and whether they have smuggled or contraband goods on board.

Action at Wrecks.

31. Officers in charge of adjacent stations when called upon shall at once proceed to render assistance unless actually engaged with another disaster or about to be so engaged. If their assistance is not requested, they shall keep themselves in readiness to respond promptly to any subsequent call, and the officer in charge of the station nearest the wreck shall post a lookout within signal distance of the scene of operations to receive and transmit such request.

32. (1) At a station which has telephonic communication the officer in charge of the station nearest to which a wreck or other marine casualty occurs shall immediately notify the officers in charge of adjacent stations of the circumstance and, if necessary, request their assistance.

(2) At a station which has no telephonic connection with an adjacent station the officer in charge, upon the occurrence of a marine casualty during the day, shall notify the officer in charge of such adjacent station by flag or distant signal, if within communicating distance by such means; if the casualty occurs at night, he shall immediately fire a red rocket. He then shall proceed to the wreck, firing red rockets at intervals of 8 or 10 minutes, until his supply is exhausted or until answered by the patrol from such

adjacent station by hand lights or from the station by a white rocket. A patrolman, upon seeing a red rocket, shall answer it with a red Coston light and immediately hasten to his own station and report to the officer in charge thereof, who shall, if the signal was from another station, fire a white rocket and hold himself in readiness to respond to a signal for assistance, posting a lookout as required in the preceding article.

33. The signal for assistance at night from adjacent stations where other and better means are not available, shall consist of two red rockets fired in quick succession if the assistance of one station is desired, or of three rockets if assistance is wanted from more than one station. Each officer in charge of a station who is liable to call for assistance in this manner from adjacent stations shall have a previous understanding with the other stations as to which shall answer his two-rocket signal and which shall answer his three-rocket signal. The station or stations called shall answer with a white rocket and proceed at once to the scene of the casualty. Rockets shall not be used for any other purposes than those specified in this and the preceding article.

34. The officer in charge of a station who first arrives at a wreck with his boat or apparatus shall at once proceed to land the persons on board, if necessary and possible, unless the conditions are such that the assistance of another crew is indispensable. If two or more units of the Coast Guard are at the scene of a disaster, the senior officer present shall have charge of the operations.

35. In attempting a rescue the officer in charge of a station shall select such apparatus—lifeboat or surfboat, breeches buoy, or life car—as in his judgment is best suited to cope effectively with prevailing conditions. If the device first selected fails after such trial as satisfies him that further attempts with it are useless, he shall resort to another, and shall not desist from his efforts until by actual trial the impossibility of effecting a rescue with any of the means at hand is demonstrated. The statement of the officer that he did not try to use the boat because the sea or surf was too heavy will not be accepted; attempts to launch must be actually made, unless the conformation of the coast—as bluffs, precipitous banks, etc.—is such as unquestionably to preclude the use of a boat.

36. On arriving at a wreck the preservation of life shall be the first consideration of the officer or surfman in charge, and he shall on no account take aboard goods or merchandise which may endanger the safety of his boat or the lives of those intrusted to his charge. Should anything be put into the boat against his remonstrance, he is authorized to throw it overboard.

37. In establishing communication with a wreck by means of a gun throwing a line-carrying projectile, the larger-sized shot lines shall be used when the distance and other conditions permit. When it is found necessary to use a No. 4 line, a larger line shall be sent out by it for use in hauling off the whip; and if a No. 7 line has been successfully thrown to a vessel judged to be 300 yards or more from the shore, a No. 9 or other stronger line shall be sent out to carry the whip.

38. The standard charge of powder for the Lyle gun in practice or drill with the beach apparatus is 2 ounces. In actual service 4 to 6 ounces of powder may be used for a No. 4 or No. 7 line and 5 to 6 ounces for a No. 9 line. The maximum charge of 6 ounces shall not be exceeded except under extraordinary circumstances, nor until at least two trials with that charge have failed to carry the line the required distance. In such cases charges of 7 to 8 ounces, but in no case more than 8 ounces, may be used.

39. If, upon boarding a stranded vessel, there is found to be no immediate danger of loss of life and the conditions of sea and weather warrant an attempt to float the vessel, the officer and crew shall render the master every assistance in their power to that end, bearing in mind that the lines and gear belonging to the beach apparatus are to be used only in landing imperiled passengers or crews.

40. When the master of a stranded vessel contracts or bargains with any person or company to get her afloat or dismantle her, or sells her or turns her over to the wreck commissioner or to any agent of the owner or underwriters, the responsibility of the officer in charge of the station as regards the property shall cease, except as to customs duties on the cargo, etc., unless the services of the crew are required by subsequent danger or casualty.

41. While the saving of property is an important function of the Coast Guard, second only to the saving of human life, and officers and crews are required to make every reasonable effort to that end, they shall not neglect the regular duties of their stations, particularly the patrols and watches, in order to perform labor on board a stranded vessel not in immediate danger of total loss when such labor can be performed by her crew or by other persons available for hire; and the master's neglect or refusal to secure such assistance at the earliest opportunity shall be deemed to relieve the station crew from further responsibility. In no case shall a station crew or portion thereof remain on board a vessel, when removed from the station limits, to man the pumps, lighter cargo, etc., unless, in the judgment of the officer in charge of the station, the crew of the vessel,

with the aid of such other help as is procurable, is unable to keep her afloat. In case the vessel can be kept afloat without their aid, they shall return to the station and resume their regular duties as soon as possible.

42. When a working party is employed on board of a wreck, the officer in charge shall, on the approach of bad weather, exercise the same vigilance for saving life as in the case of a vessel just stranded.

43. The bodies of drowned persons found in the surf, on the beach, or on a wrecked vessel shall be properly cared for until they can be turned over to friends or to the proper local authorities. If they can not be positively identified, a description, as complete in detail as possible, shall be entered in the log, and a copy immediately sent through the proper channel to Headquarters, with any information obtainable as to the possible identity of the drowned person. A station crew may aid in recovering the bodies of drowned persons when, in the opinion of the officer in charge, such work will not interfere unduly with their regular duties.

44. If articles of value, trinkets, or anything else that may assist in its identification are found upon a body, they shall be carefully preserved and turned over to the coroner or other proper civil officer and duplicate receipts taken therefor, one of which shall be retained by the officer in charge of the station and the other forwarded to Headquarters.

Patrols and Lookouts.

51. Where patrols are maintained in two directions, the patrol for the second half of the period shall ordinarily be made in a direction opposite to that in which it was made during the first half. When practicable, the watch and patrol bill shall be so arranged that the same person shall not make the patrol in the same direction on successive nights.

52. The lookout shall be stood at or in the watch house, station lookout, or other place where the best view of the coast and surrounding waters may be obtained. This place shall be designated by the officer in charge of the station, with the approval of the district superintendent. The lookout shall not leave his post for meals or other purposes until properly relieved, except when necessary to give an alarm of a wreck or other casualty.

53. When two or more stations are within communicating distance, patrols covering the same or similar periods of time shall be made in the same direction from each of those stations. Where the distances to be covered are short, two or more patrols each way may be required in each watch.

54. On those portions of the coast where the limits of the patrol can not be seen from the station, the beach shall be considered sufficiently patrolled during daylight if the limits are brought in sight at least three times.

55. A complete record of patrols and lookouts shall be made by means of checks, time detectors, or telephone, or by such other means as may be prescribed by Headquarters.

56. When a surfman has made his regular patrol and his time has not expired, he shall continue to patrol the beach until it is time to call his relief. During his watch on the beach a surfman shall not remain at the station longer than is necessary to get warm or to trim his lantern. Should any person fail to return at the expiration of his patrol, the next patrolman shall set out at the regular time, without awaiting the arrival of his predecessor.

57. (1) A person on lookout watch shall make impressions on the dial of the time detector or watchman's clock at intervals of 30 minutes.

(2) A surfman on patrol shall make impressions upon the dial of the time detector with keys located at such points as the officer in charge may determine, with the approval of the district superintendent. If two or more points are to be visited by the patrol, a different key shall be placed at each and used in turn.

58. Where the entire beach between two stations is not covered by the patrols a key post shall be placed at the limit of each prescribed patrol, and the surfmen shall, by use of watchmen's clocks, make records of their visits thereto.

59. Where adjacent stations are so located that their patrol limits join each surfman on patrol shall carry a check bearing his crew number and the name or number of his station, which he shall deposit in the prescribed place, to be taken up by the next surfman from the adjacent station and delivered to the officer in charge thereof, except that the last patrolman in the morning shall not so deposit a check. The officer in charge of each station shall return the checks so received to the proper halfway point by the first patrolman of the next night reaching there.

60. A surfman failing to find the check which should be at the halfway point shall, in the absence of telephonic communication at that point, proceed to the next station and ascertain the cause or failure to deposit the check and, if possible, notify the officer in charge of his station by telephone of his action. If such surfman be the first patrolman of that watch, the officer in charge of the station shall at the appointed time take the second station lookout

seaward when forced to retire inland. Riding on a bicycle, on cars, in boats, or other private or public conveyances shall not be permitted unless specially authorized by Headquarters.

68. A surfman upon his return from patrol shall not retire until his relief is dressed and ready with the necessary equipment to take the beach. Ten minutes is sufficient for a man to prepare himself to go on patrol, and a longer time shall not be allowed.

69. In addition to the time detector or patrol checks prescribed in articles 57, 58, and 59, each surfman on patrol shall carry a signal holder and not less than three red pyrotechnic signals of approved type in fit condition for use, a flash light for signaling, a lantern having a clear glass globe, lighted or unlighted, as he may prefer, a supply of matches carefully protected from dampness, and such other articles as may be prescribed.

70. When a surfman on patrol discovers a wrecked or stranded vessel he shall at once fire a red pyrotechnic signal of approved type and shall immediately notify his station by telephone or flashing light signals, using the readiest available of these means of communication. The station lookout shall answer by firing one red pyrotechnic signal, unless quicker response can be made by telephone or flashing light signals. A surfman on patrol receiving no answer to his signal or call, shall, if within easy reach of a telephone call box, notify his station by that means and hasten to the station to assist with the boat or other apparatus.

71. A surfman on patrol who discovers a vessel dangerously near the shore or a shoal shall immediately burn a red pyrotechnic signal as a warning, and if he be provided with a flash-light torch he shall endeavor to get in communication with her by means of it and inform her of her position.

72. If a vessel be discovered dangerously near the shore or a shoal during the day, she shall be warned by hoisting the proper International Code signals. In order that all members of the crew may be thoroughly qualified to give such warnings, each officer and surfman, including temporary surfmen and substitutes, shall make a study of the coast line embraced within the patrol limits of his station, as shown by Government charts and verified by frequent soundings and by taking bearings of shoals, headlands, lighthouses, buoys, and other daymarks. Before sending a new surfman or a substitute upon patrol the officer in charge shall instruct him on what bearing or at what distance offshore an approaching vessel shall be warned of her danger.

Surfmen.

80. Surfmen, temporary surfmen, substitutes, and the cook or temporary cook shall reside at the station while it is in commission, and none of these persons shall absent himself therefrom except when on duty, leave, or liberty.

81. (1) A surfman on lookout shall keep in a rough log a record of each vessel passing the station, noting its class, name (if known), time of passing, and direction in which proceeding. He shall also enter in the rough log all telephone connections made, all telephone messages received and sent, and, if long-distance calls, from whom received and to whom sent, and the time of each. He shall sign the rough log at the end of his watch.

(2) He shall not sit down, lie down, sleep, read, entertain visitors, or do anything else that will tend to interfere with the proper discharge of his duties. He shall immediately report to the officer or other person in charge of the station all occurrences which involve, or seem likely to involve, danger to or loss of life or property. He shall not leave the lookout unless properly relieved.

(3) He shall not take into the lookout any book, paper, pamphlet, or other reading matter, or any chair, stool, bench, or other seat, nor shall he permit any such article or articles or any person not connected with the service in the lookout while he is on watch.

82. When any member of a station crew discovers a vessel wrecked, stranded, or apparently in distress he shall at once report the fact to the officer or surfman in charge; if on patrol, he shall be governed by the provisions of article 70 and immediately report to the officer or surfman in charge.

Swimming Qualifications.

83. (1) It shall be the duty of all officers in charge of stations to see that every enlisted person attached, except the cook, unless permanently excused by Headquarters, shall demonstrate his ability as a good swimmer by passing the following tests, each of which shall be performed as a single exercise and not separated into its component parts with intervals of rest between:

a. To swim 100 yards, dive properly from the surface, and swim 50 yards on his back.

b. To dive from the surface of the water and bring up a 10-pound object from a depth of at least 7 feet.

c. To carry a supposedly drowning person of at least his own weight 20 yards with a two-hand carry and 20 yards with a one-hand carry.

d. To swim 50 yards dressed, with shoes, trousers, and coat on, and at the end of the 50 yards' swim to remove those articles in the water without touching bottom.

(2) The officer in charge will be expected to use proper discretion in conducting the tests, and shall not require men to undergo them under unfavorable conditions or to remain too long at a time in the water or in wet clothing. He shall not require any member of a crew to undergo all four tests in immediate succession, or in any one day, unless the person desires to do so and the officer in charge regards it as safe and expedient. The officer may, however, require each applicant to undergo tests (*a*) and (*b*) at any one time.

(3) Petty officers and surfmen shall keep themselves in good swimming practice. To this end each officer in charge of a station is enjoined to require his crew to practice swimming when the conditions are favorable, paying particular attention to the means which would be employed in saving drowning persons.

84. (1) Provided the temperature of the air and water and the condition of the weather are favorable, the officer in charge shall require every applicant for original enlistment, or for reenlistment, except as stated below, to undergo these tests before enlistment or reenlistment. When the tests can not be made prior to enlistment or reenlistment, they shall be made at the earliest opportunity thereafter. When the tests are conducted in any case after enlistment or reenlistment and the results are unsatisfactory, the officer in charge shall report the facts to the district superintendent, who shall refer the matter to Headquarters with appropriate recommendation. Applicants for reenlistment who have qualified in these tests during a former enlistment, and those who have been permanently excused by Headquarters from undergoing them, shall not again be required to undergo the swimming tests as a qualification for reenlistment, but it must be shown by the records of the Service that the tests were successfully passed by all such applicants or that the applicants were permanently excused by Headquarters.

(2) A man required to qualify as a good swimmer under the provisions of article 83 may be permanently excused by Headquarters from undergoing the swimming tests because of his age, or length of service, or upon the recommendation of a medical report. Upon satisfactory evidence to Headquarters that such man "has been able to swim well," he will be regarded as a good swimmer and will be

entitled to an honorable discharge if otherwise qualified therefor under the Regulations. In every case covered by this article the medical report must be obtained from a proper medical officer and shall indicate:

a. The physical ailment or constitutional difficulty which makes it inadvisable for the man to undergo the swimming tests.

b. Whether such ailment or constitutional difficulty is incident to service.

c. Whether it is permanent.

d. What ill effects, if any, would likely result if the man should undergo the swimming tests when the temperature of the water and air is suitable.

(3) When a person is permanently excused from taking the swimming tests but is not regarded as a good swimmer under the provisions of paragraphs (1) and (2) of this article, he is entitled to an ordinary discharge only. Such a man's mark for proficiency in rating shall be less than "2.75" and his discharge shall carry the notation: "Not a good swimmer, but permanently excused from undergoing the swimming tests by Headquarters' letter of ....., 19..." Such a person may be recommended for reenlistment if otherwise qualified therefor.

85. (1) A person discharged by direction of Headquarters by reason of failure to qualify as a good swimmer shall be given an ordinary discharge, and the reason for such discharge shall be indicated in the space provided for the purpose by using the following notation: "Inaptitude for the service. Not a good swimmer." The discharge shall also carry the notation: "Is not recommended for reenlistment as a petty officer at a station or as a surfman until he qualifies as a good swimmer," and in all such cases the mark for proficiency in rating shall be less than "2.5."

(2) In every case where a man required to qualify as a good swimmer under the provisions of article 83 is discharged (except under the conditions enumerated in articles 84 (3) and 85 (1)), and such man has not qualified as a good swimmer by passing the required tests, or is not regarded as a good swimmer under article 84 (2), he shall be given an ordinary discharge, and the discharge shall carry the notation: "Is not recommended for reenlistment as a petty officer at a station or as a surfman until he qualifies as a good swimmer." Where a man is about to be discharged under the conditions set forth in this article and his record is such that he would be entitled to an honorable discharge except for the fact that he is not a good swimmer, and the circumstances and conditions of his case appear to warrant

that he be excused altogether from taking the tests or given additional time to qualify in them, the district superintendent shall bring the matter to the attention of Headquarters with a statement of the facts and make suitable recommendations, in sufficient time for appropriate action by Headquarters.

(3) A person who is not recommended for reenlistment because of failure to qualify as a good swimmer shall not be reenlisted for duty at a station, except as cook, without authority from Headquarters.

86. (1) When an enlisted man has qualified as a good swimmer by passing the prescribed tests, the following entry shall be made in the blank space provided for entry of swimming qualifications on all copies of his "Enlistment contract and record:"

"Qualified as a good swimmer at Station No. ...., ..., 19..."

(2) When an enlisted man has been permanently excused from undergoing the swimming tests and is regarded as a good swimmer under the provisions of article 84 (2), the following entry shall be made on his "Enlistment contract and record:"

"Regarded as a good swimmer by authority of Headquarters' letter, ..., 19..."

(3) When an enlisted man has been permanently excused from undergoing the swimming tests, but is not regarded as a good swimmer under the provisions of article 84 (2), the following entry shall be made on his "Enlistment contract and record":

"Not a good swimmer, but permanently excused from taking the swimming tests by authority of Headquarters' letter, ..., 19..."

(4) Upon each reenlistment the particular entry applicable to his case will be repeated in the new "Enlistment contract and record" of every enlisted man at a Coast Guard station.

87. In the case of each enlisted man whose "Enlistment contract and record" does not carry one of the entries indicated in article 86, it shall be the duty of the officer in charge of the station to which the man is attached to see that the man undergoes at the earliest practicable date the swimming tests in which he has failed to qualify.

88. Ample opportunity shall be given the personnel to engage in swimming, both for pleasure and practice, but officers in charge of units should take suitable precautions to safeguard the lives of men under their command by prohibiting swimming immediately after meals, in contaminated waters, and waters unsafe for diving. If practicable, a pulling boat should be kept ready and manned in the vicinity of the swimmers.

CARE AND PRESERVATION OF PROPERTY.

91. No unauthorized changes shall be made in any building at a station.

92. The officer in charge shall each month make an examination of the foundations of all buildings, and shall see that sand is kept below the sills, joists, etc. He shall see that the skirting around the foundations is sound, promptly renewing any decayed boards.

93. He shall see that gutters and down spouts are kept clear of trash, leaves, or sand.

94. He shall see that the floors are kept clean and oiled at frequent intervals with the prescribed preparation.

95. He shall see that all sashes are kept in good operative condition, renewing sash cords when necessary.

96. He shall see that all locks, knobs, and hardware generally are set up snug, and shall not permit anything to get loose.

97. He shall frequently inspect the roofs for leaks, and make prompt repairs before damage occurs.

98. He shall see that barns and stables are kept in good sanitary condition and in good repair.

99. He shall see that boathouses, inclines, etc., are kept in thorough repair and clear of sand and other obstructions.

100. He shall see that all buildings not continuously in use are thoroughly aired at frequent intervals.

101. He shall see that the launchways are kept clear of sand and other obstructions, and that the launching carriages, boat wagons, etc., have all moving parts thoroughly clean and oiled.

102. The officer in charge shall immediately report to Headquarters the loss, theft, or destruction of any article of value, giving the attendant circumstances and, if possible, the date when the article was received. Such articles shall not be reported by a board of survey, but entered as "lost," "destroyed," etc., with date of occurrence, in column of "Remarks" in the "Record of public property."

103. All new cordage of any kind upon being received at a station shall be stretched, all kinks worked out, and then measured and properly rolled or coiled, and their respective lengths entered in the record of public property.

104. The officer in charge shall see that the screens furnished for windows and doors of the station and detached kitchen and pantry are kept in place and screened doors kept closed at all times when their use is necessary. He shall use every effort to keep all

living and sleeping quarters, kitchens, dining rooms, pantries, and food free from flies, mosquitoes, roaches, and vermin. He shall see that all screens for windows and doors fit properly and are kept in good repair, and shall make requisition for the material necessary therefor.

105. (1) When a field assistant, construction and repair, forwards a recommendation for construction and repair work which he recommends be performed entirely by a station crew, he shall submit therewith to Headquarters, through the district superintendent, a full and complete description of the proposed work and a schedule of materials required for the same, both in triplicate, together with proposals for furnishing the materials. In the absence of instructions to the contrary, the foregoing procedure will terminate the field assistant's connection with the matter.

(2) In forwarding such recommendations and proposals to Headquarters, the district superintendent shall make such comments as he may deem necessary.

(3) If any of these proposals is accepted by Headquarters, the district superintendent will be advised accordingly, and thereupon the officer in charge of the station will be directed by the district superintendent to have the work performed by the station crew as soon as practicable after the materials have been properly delivered at the station.

106. When so requested by a field assistant, construction and repair, the officer in charge shall see that the members of his crew render such assistance as may be practicable to such field assistant in the prosecution of his work at the station, when it will not interfere with the regular station duties, wreck or rescue work, or with reasonable hours for rest.

107. He shall see that the beach apparatus and every part thereof is, after actual service or drill, thoroughly cleaned and free from sand and dirt and restored to its proper place in the house in readiness for instant use; that all metallic parts are dried and wiped with an oiled cloth and all lines and hawsers thoroughly dried at the first opportunity; that lanterns and torches are filled and trimmed and that the proper number of signals, water lights, charges of powder, etc., are in their places.

108. When a station is placed out of commission, he shall see—

(*a*) That the station and everything belonging thereto is in the best possible condition as to cleanliness and for preservation.

(*b*) That the crew remove all their clothing and personal effects, except the mattresses, pillows, and bedding of those members who

intend to return when the station is next placed in commission, from the lockers and station premises and deliver the locker keys to him.

(*c*) That the mattresses, pillows, and bedding left are clean, protected from moths, inventoried, neatly stowed, and that a copy of the inventory is given to him and another retained by the owner of the articles.

(*d*) That toilets and privies are thoroughly cleaned and disinfected, and that the water supply for toilets not in use is drained and shut off, and that every precaution is taken to prevent water pipes freezing and bursting.

(*e*) That all refuse is burned, buried, or removed to a safe distance from the station.

(*f*) That all bright and exposed metal work of apparatus and working tools is free from rust, wiped off, and oiled; that all fire extinguishers are ready for use and placed where they will not freeze or deteriorate from cold, and that, where no danger from freezing exists, fire buckets and barrels are filled.

(*g*) That all water is drained from the water jackets and pipes of the engines of power boats dismantled or laid up and of hoisting and pumping engines and pumps, and that all boat bilges are clean and dry.

109. The hand signal torch shall be protected from moisture and excessive heat, as these are detrimental to the dry batteries and the operation of the torch. The fiber sleeve should be interposed between the metal case and the contact spring when the torch is not in use in order to prevent draining the battery. The dry battery should be removed from the case as soon as the battery becomes exhausted, in order to protect it from swelling in the case. Spare dry batteries should be kept in a moderately heated dry place.

Painting Stations.

121. The following paints will be used when needed for repainting the buildings at Coast Guard stations:

OUTSIDE.

(*a*) Outside white paint, mixed, for walls of buildings, including trim; also fences and flagpoles. The walls of unpainted buildings and fences constructed of rough lumber should be whitewashed. *Outside shingled walls and roofs not previously painted shall not now be painted without permission from Headquarters.*

(*b*) Green paint, mixed, for underside of porch roofs, blinds, outside of all outside doors and sash, and baseboarding below water table.

(*c*) Light lead-color paint, mixed, for porch floors and treads of outside steps and for repainting all painted floors in buildings.

(*d*) Red roof paint, mixed, for roofs.

INSIDE.

(*a*) Inside white paint, mixed, for inside trim. (The doors, inside of sash, casings, baseboards, and wainscoting are considered inside trim.)

(*b*) Regulation straw-color paint, mixed, for plastered and ceiled walls and ceilings when painted.

(*c*) Varnish, hard-oil finish, for woodwork that is to be kept bright.

122. Buildings which have not been painted will not now be painted. Shingles on roofs and walls that have not been stained or painted will not now be stained or painted.

123. *Repainting.*—Repainting of entire buildings will not be done without permission from Headquarters, but touching up should be done when needed to keep the surfaces properly protected from the weather. When parts are dirty or dingy, they shall not be painted for the purpose of giving a clean appearance, so long as the old paint is sufficient to protect the parts. Such parts shall be scrubbed as often as necessary, and no paint shall be applied until the old paint is worn thin. This applies to the exterior of buildings as well as to the interior. In cases where the paint is at present excessively thick, cracked, peeling, or blistered it shall be scraped off and surfaces sandpapered before any more paint is applied. When a blowtorch is used, care shall be taken regarding fire risks, *especially in places where there are cracks or openings in the wood that might allow the flame to enter, particularly around the shingles. The use of paint burners is prohibited on roofs and the outside walls of shingled buildings.* The torch must not be inverted while lighted.

124. *Floors.*—For scrubbing the floors a strong solution of soap powder may be used; otherwise soap may be used in the ordinary manner. No soda or cleaning materials should be used other than those above mentioned.

125. *Whitewash.*—Whitewash should be prepared as follows: Slake half a bushel of unslaked lime with boiling water, keeping it covered during the process; strain it and add a peck of salt dissolved in warm water; 3 pounds of ground rice put in boiling water

and boiled to a thin paste; half a pound of powdered Spanish whiting and a pound of clear blue dissolved in warm water; mix these well together and let the mixture stand for several days. Keep the wash thus prepared in a kettle or portable furnace and when used put it on as hot as possible with painter's or whitewash brushes.

126. *Windows.*—All window sashes must be kept well puttied. When it is found that the old putty is cracked, it should be entirely removed and sashes allowed to become perfectly dry, after which they will be primed, and when paint has dried sufficiently to become sticky the sashes may then be reputtied, replaced, and paint and putty allowed to harden together. When putty becomes hard, it may then be painted. In so doing care must be used not to get paint on the glass and make a ragged appearance.

127. *Gutters and down spouts.*—The inside surface of gutters shall be painted with metallic red roof paint.

128. *Scrubbing and cleaning.*—To clean painted woodwork or other painted surfaces, scrub with clean, fresh water and soap. If necessary, a small amount of sal soda, ammonia, or washing compound may be put in the water. After scrubbing, wipe off with clean water and cloth.

129. *Preparation of work for painting.*—Paint will not adhere to nor dry upon wood or metal which is not perfectly clean and entirely free from moisture, dust, soot, and grease. The surface to be painted must be thoroughly dry, and no painting should be done in rainy or foggy weather or just after a frost. Dust and soot must be removed by brushes and cloths and by washing with hot soft water and soap.

130. *Puttying.*—Before painting, all nail holes, cracks, etc., should be carefully puttied.

131. *Preparation of plastered walls for painting.*—The walls must be thoroughly dry and brushed free from all dust and loose particles of mortar. They should then be primed with two or three coats of linseed oil or glue sized, and when they are dry the colored finishing coats should be put on.

132. *Washes.*—Before applying a new coat of wash, all loose or peeling sections of washes previously applied should be scraped off. Surfaces should be scraped when necessary to keep the wash from becoming excessively thick.

133. *Instructions for applying paint.*—Paint should be put on by strokes parallel with the grain of the wood. Long, smooth pieces like window and door casings should be finished by drawing the brush carefully along the whole length if practicable or by smoothing on to the painted surface as the work progresses, so that

there may be no breaks in the lines. If the brush is held too obliquely to the work it will leave the paint in thick masses wherever it is first applied after being dipped into the pot, and the surface will be daubed but not painted. A second coat should not be put on until the one previously applied has become thoroughly dry and hard, which will never be the case so long as it is sticky in the least to the touch. Each coat should be of the same thickness throughout, otherwise the work when completed will have an unfinished and slovenly appearance. Paint put on too thin after priming will crack in drying; if put on too thick, it will blister, wrinkle, and peel off. In using the brush where there is sufficient space, draw long strokes to extend the color in a smooth and uniform manner. Where the space is contracted or rough the paint should be laid on in dabs for the purpose of getting it into the recesses and places where the surface is unequal, and then carefully smoothed out.

134. *Care of paints.*—(1) Paints shall be kept in a dry place and driers or varnish in tins or bottles. The paint remaining in a partially empty keg, pail, or tin can should be covered with oil and a cover placed over the same. Paint shall never be left to dry or left exposed to the air or weather.

(2) When paint is opened for use it should be thoroughly stirred so that there is no thick paint remaining in the bottom of the can. The paint should be kept well stirred while it is being applied in order that it may be kept of uniform thickness. Should the paint in the pot become too thick while it is being applied it may be thinned by the addition of linseed oil and turpentine or petroleum spirits in proper quantities.

135. *Varnishing.*—In using varnish great care should be taken to have the surfaces quite clean, washing them if necessary. The cans should be kept corked, the brushes free from oil and dirt, and the work protected from dust or smoke. Varnish should be applied in very thin coats laid on in the direction of the fibers of the wood and sparingly at the angles. No second or subsequent coat of varnish should be applied until the previous one is permanently hard, otherwise the drying of the under coat will be stopped. The surface of natural wood which is to be varnished should be "filled" before the varnish is applied to prevent it from being wasted by sinking into the pores of the wood.

136. *Use and care of brushes.*—Large paint brushes should be used for priming and painting over large surfaces which require considerable quantities of paint. Small brushes should be similarly

used for smaller surfaces. Separate brushes should be used for each color. If there is a shortage of brushes and it is desired to use them for a different color, wash them in linseed oil and turpentine and then with soap and water. The oil or turpentine used for washing should be saved for mixing paint of the same color. It is important to properly swell a new brush before putting it to use, but under no circumstances should it be put into water to soak, for this will cause the brush always to work flabby, and if the bristles are of fine grade the brush will twist out of shape. The best method of swelling the head of a brush that has dried out is to separate the bristles carefully and pour a tablespoonful of water on the brush end of the handle and then stand the brush with the bristles up until the water has been absorbed. This will swell the head and make it as firm as when made. Brushes which have been used must not be left to dry with the paint in them. They must be kept soft by immersing them in enough linseed oil to cover the bristles within one-half inch of the binding. Place sufficient linseed oil in a can, pail, or jar and hang or suspend the brushes in the oil, the bristles to be free of the bottom. Brushes standing in water with bristles and ferrules wholly immersed will soon be unfit for use. When through using brushes and they are to be laid away for some time, they should first be washed in turpentine, then with soap and water until all paint is removed, and then thoroughly dried.

BOATS.

140. Boats at Coast Guard stations shall be classed as follows:

Characteristics.

Motor lifeboat.—Pointed stern; self-bailing; self-righting; provision for sails.

Lifeboat.—Machinery omitted; characteristics same as motor lifeboat; centerboard added.

Motor S–B surfboat.—Pointed stern; self-bailing; full bilge, shallow draft; light construction for transportation on wagon and launching through surf.

S–B surfboat.—Machinery omitted; characteristics same as motor S–B surfboat; water-ballast tank, centerboard, and provision for sails added.

Motor surfboat.—Pointed stern; air tanks; full bilge, of light construction; without self-bailing feature.

Surfboat.—Machinery omitted; characteristics same as motor surfboat; centerboard and provision for sails added.

Whaleboat.—Pointed stern; round bilge; fine lines for easy rowing; designed as pulling and sailing boat only; centerboard and provision for sails.

Motor launch.—Square stern; full bilge and lines; heavy construction, arranged as a substantial service boat.

Launch.—Machinery omitted; characteristics same as motor launch; centerboard and provision for sails added.

Motor dinghy.—Square stern; full bilge; for light service.

Dinghy.—Machinery omitted; provision for sails added.

Motor dory.—Transom stern; raking stem; flat floor, with pronounced fore-and-aft sheer and typical dory lines.

Dory.—Machinery omitted; provision for sails added.

Motor boat.—Miscellaneous types of boats designed or purchased from time to time, not of above classes. To be in the above groups, a boat must be in good condition for the service indicated by the classification; boats originally of the kinds described, but used only as work boats or station boats for miscellaneous service, come under this general group of "motor boats."

Boat.—Miscellaneous types, machinery omitted; otherwise, characteristics as described above.

General Instructions.

141. All boats shall be kept clean, in good condition, and properly fitted with all necessary equipments for performing efficient service and securing the safety of their crews. The full equipment of boats shall be kept in them at all times and neatly stowed, excepting boat covers and those tools and spare parts furnished for repairing machinery which could not ordinarily be used at sea.

142. Upon returning from service or drill each boat and its equipment shall be thoroughly dried and put in order at the first opportunity. Deck hatches of self-bailing boats shall be kept open during daylight and the interiors thoroughly aired and dried while the boat is in the boathouse.

143. Care must be taken to prevent the accumulation of oil, gasoline, and water in the bottoms of all motor boats, and the bilges must be cleaned out frequently.

144. Boats that are ordinarily kept in the water shall be carefully inspected each day and the water line kept free of marine growth.

145. Each man shall keep his life preserver on his thwart. Each man shall keep the shoulder strings of his cork life preserver crossed and knotted at the proper length and the waist strings tied loosely in front with a slipknot.

146. The officer in charge and every other member of the crew, except the man operating the engine of a motor lifeboat, shall wear a life preserver on all occasions of drill or actual service in boats. The life preserver for the man operating the engine of a motor lifeboat shall be kept near at hand when not worn. If the men are required to work on board a wreck and the life preservers become impediments, they may be removed while on board, but must be put on before entering the boat.

147. The life preserver for each person shall be marked with his watch number on the inside of the middle of the back.

148. The after thwart of each boat shall be designated as No. 1, the next forward thwart as No. 2, and so on. The odd-numbered men will take positions on the starboard side and even-numbered ones on the port side. The No. 1 and the No. 2 men shall pull on the after thwart.

149. The oars shall be numbered from aft forward, each stroke oar being numbered I, the oars for the thwart next forward II, and so on. The numbers shall be marked in roman numerals on the loom 3 inches from the handle on each side, so that the number shall be up when the oar is lying flat on the blade. The oars for each side shall be kept on each outboard side of the thwarts, with the blades forward.

150. A boat shall never be left alongside a vessel or wreck without a boat keeper; in rough weather there shall be at least two boat keepers.

INSTRUCTIONS SELF-BAILING SURFBOAT WITH BOAT WAGON.

155. The boat wagon, with the boat loaded upon it, shall be kept in the boat room with the bow out toward the doors. Drag ropes of 2-inch manila rope shall be fitted to the eyes on the rear-axle braces, having one loop in each rope large enough to pass easily over a man's shoulder; and two other drag ropes shall be fitted, one on each side, to the forward crosspiece of the hounds, with two loops on each rope. Side lashings of whip-line stuff sufficiently long to make fast around the gunwale of the boat shall be fitted into the eyes on the rear axle. A check rope of whip line stuff 1½ fathoms long shall be spliced around the after rear axle on the left side for taking a turn around the bilge keel of the boat to prevent its running down the reach when unloading.

156. The boat shall never be dragged over the ground with the water-ballast tank valve open, as the sand will be forced into the tank. If sand accumulates in the tank, it must be removed. This may be done by taking out the valve and using a piece of hoop iron or a long-handled spoon. Forward and aft of the valve well removable sections of the deck will be found, under which are handholes in the tank, through which the sand can be pushed to the valves. When allowed to accumulate it often is impracticable to remove the sand from the outside, therefore the tank should be flushed with clear water after each launching in surf containing sand. Securely screw in the hand plates before replacing the deck. (This paragraph does not apply to boats numbered higher than 1460.)

Boat Equipment.

SELF-BAILING SURFBOAT.

161. A medical kit, fitted into an oiled canvas bag, and a boat compass shall be kept ready at all times and shall be carried in the boat which is being used for drill or service. Coston signals and a flashlight torch, in oiled canvas bags, shall be carried in all boats engaged in wreck or rescue work.

162. Care shall be taken that articles of equipment are secured so that they can not get adrift.

163. Each self-bailing surfboat shall be provided with the following equipment:

One set of oars.
Two spare oars.
One steering oar.
One painter.
Two boat hooks—one forward, one aft.
One set of rowlocks and two spare rowlocks.
Two boat hatchets, one forward and one aft, kept in pockets on the inside of the boat and secured with a lanyard 2 feet long spliced in a hole in the end of the handle of each. An eye 6 inches long will be spliced in the other end of the lanyard to slip over the hatchet after the lanyard is passed around the inside gunwale, thus securing the safety of the hatchet.
Two boat stretchers for each thwart.
Heaving stick and line, to be stowed forward.
One foghorn.
One "water light."

One lantern.
One medical kit fitted into an oiled canvas bag.
One electric signal torch.
One set of Coston signals, when engaged in wreck or rescue work.
Spars and sails, if furnished.
A life preserver for the officer in charge and for each member of the crew.
Eight spare life preservers, two secured on the under side of each thwart.
One anchor secured to the bottom boards amidships.
One anchor line, the length to be according to the depth of water in the vicinity of the station, but not less than 15 fathoms.
One hand grapnel with 15 fathoms of 1½-inch line stowed forward.
One 5-gallon water breaker, filled, secured against the forward bulkhead (not required on the Great Lakes).
Two canvas drogues and fittings; one stowed aft and one forward on the rail.
One 2½-foot wigwag flag in a cover, secured aft (to be attached to a boat hook when needed).
Two semaphore signal flags.
Righting lines of 18-thread manila, 18 feet long in the clear, will be spliced around the inside gunwales, one on each side of the boat abreast of each thwart. The ends of these lines will be provided with cedar floats, 4½ inches long by 3 inches in diameter, tapered, and confined at each end by a Matthew Walker knot; one to be worked before and the other after the float is put on. The righting lines will be kept neatly coiled on the thwarts, but not stopped.
Life lines of 15-thread manila, without floats, will be looped from gunwales at equal distances on both sides, the bights to be sufficiently long in the waist to reach the water line, to be used as stirrups in climbing into the boat.

SELF-BAILING MOTOR SURFBOAT.

164. This type of boat shall be provided with the same equipment as is prescribed for the self-bailing surfboat and the following additional:
One rudder.
One tiller.
One fire extinguisher of approved type for extinguishing burning gasoline.
Equipment required by law for this class of boat.

MOTOR LIFEBOAT.

165. This type of boat shall be provided with the same equipment, except the righting lines, as is prescribed for the self-bailing surfboat and the following additional:

One rudder.

One tiller.

Two fire extinguishers of approved type for extinguishing burning gasoline.

One bell.

One 3-inch manila hawser.

One breast life belt.

Equipment required by law for this class of boat.

PAINTING BOATS.

171. All boats shall be painted in accordance with the following standard scheme as nearly as their design will permit:

(*a*) Surfaces finished bright with approved spar varnish:

1. Gunwales, guards, wood towing and quarter bitts, masts, and spars.

2. Thwarts to knees. (If the boat has side air cases or compartments, only that portion of thwarts between inboard sides of the air cases or compartments shall be kept bright.)

3. Such trimmings, gratings, portable stretchers, moldings, hand grabs, etc., of oak, mahogany, ash, or other similar hardwood as were finished bright when the boat was originally accepted.

4. Water breakers and flagstaffs.

5. Boat hooks and oars shall be kept bright, without varnish.

(*b*) Surfaces to be white.

1. Outside of boat above water line, including tops and outsides of end compartments and engine inclosures above the sheer line. The water line for painting shall be about 4 inches above the actual water line of boats 30 feet long and over, and about 2 inches above the actual water line of boats less than 30 feet long. (See art. 171 (*c*) 3.)

2. Inside of boat above sheer line of top of thwarts or side compartments. This includes outsides, above the sheer line or top of thwarts, of engine compartment and other compartments when such compartments project appreciably above the gunwale of the boat, and present the equivalent of white deck houses above the sheer.

3. The inside of all compartments not ordinarily exposed to view, as compartments below the deck of self-bailing boats; and the inside

of other compartments, such as engine compartments, to improve the lighting.

(*c*) Surfaces to be regulation straw color:

1. All inboard surfaces exposed to weather up to the sheer line of top of thwarts or side air comparments, except parts finished bright. This includes tops of side and end compartments unless they come above the gunwale; ends of thwarts; and the outside of engine inclosure when it is below the gunwale line or projects only slightly above it.

2. Woodwork in engine compartments from bottom up to a line 1 foot above walking flat or engine bed, except in motor lifeboats with midship engine compartments, where straw color shall extend up to about 3 feet above the walking flat.

3. All surfaces, inside and outside, of small working boats, such as pulling dories, skiffs, scows, or scooters.

(*d*) Bottom painting:

All station boats regularly kept afloat shall be well painted on bottoms with an approved green antifouling copper paint, as follows:

1. Once each year if located on Great Lakes or on other fresh water. Ordinary green paint may be used on boats on fresh water, in the discretion of the district superintendent.

2. Twice each year if located on the Pacific coast or the Atlantic coast north of New York.

3. Three times each year if located south of New York on the Atlantic coast.

4. All station boats regularly kept out of water shall be painted on bottoms as often as protection of the surfaces requires it, in the judgment of the officer in charge.

5. Copper paint must in all cases be of the best quality. It shall be applied with the greatest care so that no spots are missed, in order to prevent damage by worms. Wooden freeing trunks of self-bailing boats shall be thoroughly coated on inside with the same kind of paint from deck to bottom whenever the bottom is painted.

(*e*) Canvas spray hoods, tarpaulins, boat covers, etc., shall not be painted.

(*f*) Each boat shall be marked on each bow with the legend "U. S. COAST GUARD" in solid black, plain block letters, and on each side of the stern with the legend "STATION NO.——" (the number so painted on the boat to be the number of the station). Small boats with square sterns shall have the station number painted on the stern and not on the sides thereof. The size and

positions of the markings shall be in accordance with the standard instructions issued by Headquarters.

172. *Boat number plates.*—Every Coast Guard boat under 40 feet in length shall bear a boat number plate. It shall be clearly visible and neatly screwed to the top of the after permanent thwart at its starboard end, or for a boat without thwarts to the bulkhead forming the after cockpit, the plate to be on the after side near the starboard cockpit coaming. Boat number plates may be painted or varnished with the same preparation as the parts to which they are attached, but care shall be taken not to fill up the plates and to keep the numbering clear and legible.

BRASS WORK.

173. All unpainted brass work in boats shall be kept bright.

GASOLINE ENGINES FOR BOATS AND OTHER PURPOSES.

181. Electric ignition, starting, and lighting systems shall be kept as clean and dry as possible. Magnetos, dynamos, coils, ammeters, and similar apparatus should never be taken apart, as all ordinary adjustment can either be made from the outside or by removing cover plates. Care should be taken to prevent short circuiting of batteries or grounding of wires, as these are sometimes causes of fire or explosion. Keep switches turned "off" whenever current is not required in a circuit. Dry batteries should be stowed in a wooden box or rack and kept free from moisture.

182. *Care of gasoline engines.*—(1) Gasoline engines, and all appurtenances, shall be kept in the highest possible state of efficiency and preservation. To this end, when not in use, they must be kept clean, covered in bad weather, thoroughly drained in cold weather to prevent freezing, and frequently examined to detect loosening of bolts and other connections.

(2) Every engine at stations in commission shall be started at least once each day to insure proper working order. When water jackets are empty an engine shall not be allowed to run more than 30 seconds, and thereafter must be allowed to cool before running again, unless jackets have in the meantime been filled. Under no circumstances shall cylinders or pistons be overheated by running engines without water. Whenever conditions permit, arrangements should be made whereby water may be circulated in engines of boats out of water, thus making possible a longer running period than that

prescribed above. A full supply of gasoline, oil, and grease shall be kept in tanks and lubricating systems, so that power boats may at all times be ready for instant use. At stations not in commission it will be sufficient if engines of power boats, kept in condition for use, are turned by hand a full revolution once in two days.

(3) When underway prompt attempt shall be made to remedy trouble if misfiring, pounding, or overheating occurs. Careful attention shall be given lubrication, and hand oiling should be done at regular intervals. Oil leaks should be prevented and engines kept wiped and as clean as possible when running, and thoroughly cleaned at end of each run.

(4) Instructions furnished by manufacturers or Headquarters for care and operation of specific makes of gasoline engines, including electrical and other apparatus, shall be strictly observed.

183. With the variation in types of engines now in use it is impossible to give definite instructions for starting, running, and stopping which will apply in all cases. The following remarks do, however, apply to all engines:

(*a*) Do not start on a trip without knowing the state of oil and gasoline supply.

(*b*) *Carburetors.*—In cold weather, or when engine is cold, more gasoline is required than in warm weather or after engine has heated to normal running temperature.

(*c*) Never attempt to start a gasoline engine without first noting the position of the spark control; it *must* be in the retard position, so that explosion will occur late.

(*d*) Never allow an engine to "race" (run idle at speed greater than maximum load speed). Such practice is dangerous and liable to result in serious damage to the engine.

(*e*) It is better to stop by cutting off ignition than gasoline, as the first method leaves cylinder charged with an explosive mixture ready for the next start.

(*f*) Power boats left with no one on board should have gasoline shut off at tank and circulating water shut off at sea cock.

(*g*) Too rich mixture results in overheating, loss of power, and waste of gasoline. It also causes black exhaust smoke.

(*h*) Too lean mixture causes back firing.

(*i*) Too much oil causes excessive carbon deposit in cylinders. It is usually indicated by white or light blue exhaust smoke.

(*j*) Too great advance of spark causes pounding.

(*k*) Insufficient advance of spark causes loss of power and overheating.

(*l*) Only good gasoline engine cylinder oil should be used, and the grade should be as heavy as the type of engine and season will permit (heavier oil can be used in summer than in winter.)

USE OF ETHER.

186. Danger, as well as expense, attends the use of ether for priming gasoline motors to facilitate starting. As serious delay is sometimes experienced in starting motors in cold weather with the low grades of gasoline now furnished, the use of ether will not be entirely prohibited, but shall be restricted as follows:

(*a*) It shall *never* be used except in case of emergency when the boat is needed to answer an actual call for assistance, and then only after attempts to start the motor in the usual manner have failed.

(*b*) The ether is to be mixed with at least four times its quantity of gasoline, and, thus diluted, introduced into cylinders through primimg cups by means of a suitable small squirt can. It shall not under any circumstances, be placed in gasoline tanks.

(*c*) The officer in charge shall have personal charge of ether furnished to a station, shall see that it is safely kept in tightly closed bottles or cans, plainly labeled, and that extreme precaution, because of its highly volatile and inflammable properties, is exercised in handling. He shall be responsible for its proper use.

187. *When laying up for winter.*—When laying up an engine all bright parts should be covered with heavy oil or grease. Vaseline is excellent for this purpose. Half a pint of heavy lubricating oil should be poured in each cylinder on top of the piston, and the engine should be turned over a few times so as to spread it.

DRILLS.

191. (1) Drills shall be held at all Coast Guard stations in commission as follows:

Fire drill.—One each week, sometimes at night.

Boat drill.—Two each week.

Signal drill.—Five each week.

Resuscitation drill.—One each week (one-half hour).

Beach apparatus drill.—One each week.

(2) The crews of Coast Guard stations shall be proficient in the following subjects: Motor-boat laws, pilot rules (regulations for preventing collision), Coast Guard Regulations, compass. At least once each week the officer in charge shall determine the proficiency of each member of the crew in these subjects by means of the questions and answers in the appendix of this book.

192. No drills shall be held on Saturday, which shall be devoted to general cleaning about the station. When circumstances permit, Saturday afternoon shall be regarded as a half holiday.

193. Drill shall be held between 8 a. m. and noon when practicable. Boat drills and signal drills shall each consume not less than one hour. Resuscitation drill, and instructions (in motor-boat laws, pilot rules, Coast Guard Regulations and compass) shall each consume not less than one-half hour. The number designating the person engaged in a drill shall be the number shown in the watch and patrol bill.

194. If the weather on any day be unsuitable for any of the prescribed drills, the officer in charge may substitute others on the schedule, but the required number of each kind of drill must be held each week unless prevented by wreck work, foggy or stormy weather, or, in the case of boat drills, by high surf. When drills are substituted for others, when they are omitted, or when less than the prescribed time is devoted to boat, signal, or resuscitation drill, an entry of the fact and the cause thereof shall be made in the log.

195. Drills omitted on account of wreck duty need not be made up, but all other drills omitted shall be made up in the afternoon in the week in which the omission occurred, if possible.

196. In general, the afternoons of drill days shall be devoted to the work of upkeep about the station premises.

Fire Drill.

201. At fire drill each member of the crew shall at once repair to his station and quietly and rapidly perform his allotted duties. All unnecessary noise, singing out, and confusion shall be avoided.

202. The signal for fire drill shall be the verbal alarm **FIRE!** This alarm will be given by the officer in charge, who shall designate the scene of the supposed fire immediately after giving the alarm. (In case of actual fire, the person discovering it shall at once give the alarm, designating its actual location.)

203. At fire drill and in case of actual fire the following duties shall be performed by the members of the crew, who are designated by their watch and patrol numbers:

Officer in charge.—Shall have general supervision at the scene of the fire; direct operations; see that each member of the crew performs his allotted duties; maintain order; and do everything in his power to extinguish the fire. He shall be provided with an ax.

No. 1.—Shall provide and attach nozzle to hose and tend nozzle; assist in leading out hose.

No. 2.—Lead out hose and attach to pump or hydrant; keep hose clear.

No. 3.—Provide fire extinguisher at scene of fire.

No. 4.—Lead out and attach suction hose; man brakes.

No. 5.—Remove powder from station; man brakes.

No. 6.—Place pump in position; assist to lead out and attach suction hose; man brakes.

No. 7.—Place pump in position; man brakes.

No. 8.—Provide blanket and fire extinguisher at scene of fire.

No. 9.—Assist to lead out and connect hose; provide fire extinguisher at scene of fire.

204. Where stationary pumps are installed it will not be necessary to provide and attach the suction hose or place the pump in position, but the men assigned those duties shall at once man the brakes.

205. Where fire hydrants connected with city water mains are installed Nos. 4, 5, 6, and 7 shall perform the following duties:

No. 4.—Assist to lead out and connect hose; keep hose clear.

No. 5.—Remove powder from station; assist officer in charge.

No. 6.—Provide bucket of water at scene of fire.

No. 7.—Provide bucket of water at scene of fire.

206. When the drill is over or the fire extinguished the officer in charge shall give the command **SECURE!** when each man shall return what he provided to its proper place. The crew shall then be mustered by the officer in charge and each man required to recite his duties at fire drill, after which the crew shall be dismissed.

Boat Drill.

211. Boat drills shall consist in launching and landing through the surf and in at least one-half hour of sustained exercise of the men in handling their oars, as directed in the prescribed boat drill. The drill shall include sailing, when practicable. Drills shall be held with both the pulling and motor surfboats and with the motor lifeboat when any or all of these types of boats are furnished at a station. Preference shall be given to drills with the pulling surfboats, in order that the crew shall always be proficient with the oars. When the motor surfboat is used the crew shall be exercised in pulling with the oars. Drill with the pulling boat shall be held when possible, in the surfboat which would be used for dangerous work.

Whenever practicable, exercise shall be had in the use of the drogue.

Drills with boats convenient to the beach or elsewhere, to avoid hauling the service boat from the boat room, will be permitted only as may be authorized by Headquarters, and then only when the drill boat conforms in the arrangement of oars, height of seats above platform, etc., to the pulling surfboat.

212. No boat drill which is not in accordance with these instructions, and which does not include all the crew present for duty at the time, shall be recorded as a boat drill.

213. At boat drills, after the officer in charge has exercised the crew sufficiently, he shall surrender the steering oar on alternate boat-drill days to No. 1 and to No. 2, respectively, who shall, under his instruction, exercise the crew in the drill, including launching and landing through surf. At such times the officer in charge shall, when practicable, take the oar of No. 1 or No. 2, as the case may be.

214. The crew of each station supplied with a self-bailing surfboat shall be exercised once each month, when the water is not too cold or the surf too high, in capsizing and righting the boat, leaving all movable equipment on shore.

215. During the months of December, January, February, and March one boat drill in each week may be omitted at stations on the Atlantic coast north of Cape Henlopen and at stations on the Great Lakes, but the time assigned to them shall be employed in other drills. (See art. 191–1.)

Drill with Self-Bailing Surfboat on Boat Wagon.

INSTRUCTIONS.

218. *Before unloading the boat from the wagon the officer in charge shall see that the valve to the water-ballast tank, the ventilators to the side air cases, and the hatches are securely closed.*

219. Water ballast, if needed, should not be let into the tank of a self-bailing boat until the boat is afloat and under control. When the tank is full the valve shall be closed. The tank may be emptied of water with the pump or by opening the valves after the boat is landed.

220. Unloading the boat from the wagon shall be practiced, so that it can be done quickly and easily, and the crew shall be timed in this evolution from the command **Unload!** until the oars are crossed and the boat is ready to be taken down to the surf. One-half minute is ample time in which to unload when the crew is properly drilled. The crew will not be drilled in loading the boat on the wagon quickly.

221. When conditions are not suitable for launching, the crew should be exercised in unloading, but this must be in addition to the regular boat drill.

DRILL.

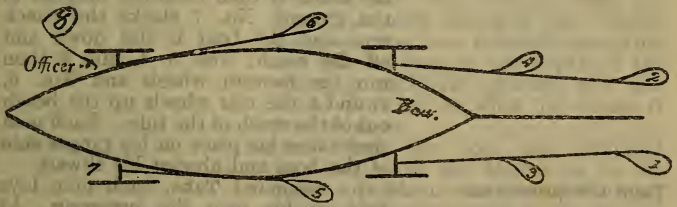
(Crew of officer and 8 men.)

222. (1) **Leaving the station for drill or service.**

Commands:

1. Man the surfboat.
2. Forward.
3. Halt—unload.
4. Take life preservers.
5. Take oars.
6. Go.
7. In bows.
8. Way enough.

COMMANDS.	DUTIES.
Man the surfboat.....	Nos. 5 and 6 open and secure the boat-room doors. If the wagon pole be detached, Nos. 1 and 2 adjust it, No. 1 holding it in position while No. 2 inserts the bolt; the men fall into place with the drag ropes over their shoulders, as shown in the following diagram:



NOTE.—If a horse is used, the man who has the care of it shall at once proceed to harness and lead it to where the boat is.

COMMANDS.	DUTIES.
Forward	The wagon is run out of the house to the most desirable place for launching, as near the water as possible, the boat's bow toward the surf. (If a horse is to be used, the surfman who has the care of the horse, assisted by one man on each side, hitches the horse to the boat wagon.)
Halt—unload	The drag ropes are dropped (or the horse unhitched, as the case may be, and secured at a safe place); Nos. 3 and 4 cast off the side lashings; Nos. 1, 3, 5, and 7 on the starboard side and Nos. 2, 4, 6, and 8 on the port side run the boat back over the rear axle as far as the wheels will allow; No. 7 takes a turn with the check rope around the bilge keel or grip streak, and tends it; No. 1 swings out starboard lifting bar; No. 2 follows with the port lifting bar, which he hooks; Nos. 1, 3, and 5 on the starboard side and Nos. 2, 4, 6, and 8 on the port side man the bars; the officer removes the king bolt, the reach is lifted, the officer removes the forward wheels, and the reach is then carefully lowered to the ground; No. 7 slacks the check rope and the boat is slid down and off the reach; Nos. 3, 4, and 5 then run the forward wheels and Nos. 6, 7, and 8 the rear wheels up the beach out of the reach of the tide. Each man then takes his place on his proper side of the boat and abreast his thwart.
Take life preservers	At the command **Take**, each man lays hold of his own life preserver. At the command **LIFE PRESERVERS**, which is given shortly after the command **Take**, the life preservers are taken simultaneously, the men put them on and proceed to adjust them.

COMMANDS.	DUTIES.
Take oars	At the command **Take**, each man lays hold of his oar. At the word **OARS**, which is given after a short interval, the oars are raised simultaneously on end, blade up, and the men, governed by No. 1, drop them together into the rowlocks on their respective sides, the handles resting against the opposite air case. The oars will be kept on end long enough to insure uniform action, and will be dropped without orders. The officer at the same time secures the steering oar in its rowlock or becket, its handle resting under the after thwart.
	The boat is launched into the water; the two bowmen jump into the boat when it is water borne, take their oars and assist to keep the boat head to the sea; No. 1 at the stern assists the officer.
Go	At this command, which the officer gives at his discretion, the men give the boat all the headway possible, then, as it becomes water borne, the bow oarsmen, the men amidships, and the stroke oarsmen, in the order named, jump in, take their oars, and give way briskly together, the bow oarsmen steadying the boat as long as the depth of the water or surf will permit, and the officer jumping in when he deems it best to do so.
In bows	Given when the boat has sufficient way and while the blades are in the water. Bowmen complete the stroke, toss oars simultaneously to an angle of 45°, boat them together, and stand erect in the bow facing forward. If a landing is to be made, the bowman next

COMMANDS.	DUTIES.
	to the landing shall use his boat hook as needed, or stand by painter or heaving stick and line, or stand ready to catch a line as directed by the officer.
Way enough.....	Given when the boat has sufficient headway and while the blades are in the water at the beginning of the stroke. The men finish the stroke and, as the oars leave the water, toss them simultaneously to an angle of 45° and boat them quickly and quietly, placing the blades entirely inside the gunwale. The stroke oarsman next to the landing place, if one, takes up his boat hook; each man unships his rowlock; bowman and stroke oarsman on side next the landing place check headway, keep boat clear, etc., as necessary.

NOTE.—When there are six or seven men in the crew, the drill prescribed for 8 men will be followed as far as practicable. In actual service, as at wrecks or in rough waters, the officer shall use his discretion about unshipping rowlocks.

(2) **Leaving a vessel for the beach.**

Commands:

1. Stand by the oars.
2. Shove off.
3. Out oars.
4. Give way together.
5. Way enough (or "In oars").

Stand by the oars.....	Every man, except the inboard bowman, ships his rowlock, seizes his oar by its handle, and sees the blade clear of the other oars. The oars should be shoved forward over the gunwale far enough to bring the handle in the proper position, and should be kept fore and aft.

COMMANDS.	DUTIES.
Shove off	Inboard bowman shoves the bow smoothly off from the ship's side with boat hook, at the same time shoving her a little ahead if possible; the officer sheers off with rudder or steering oar, assisted if necessary by the inboard stroke oar, who hauls ahead by any available means. Bowman places boat hook fore and aft amidships, seats himself, ships his rowlock, and gets his oar ready.
Out oars	Given when the boat is clear of the ship's side. The crew throw the blades of the oars horizontally outward, allowing the leathers to fall into the rowlocks, place both hands on handle, and quickly trim blades flat and directly abeam. This is the position of **Oars.** Bowmen throw their oars out at the same time as the rest of the crew, if they are ready; otherwise they swing their oars out together, touching their blades forward to insure making the movement in unison, and bring them to the position of **Oars** or take up the stroke with the remainder of the crew, as the case may be.
Give way together	All the oarsmen take the full stroke, keeping accurate stroke with the starboard stroke oar and feathering the blades. The crew will pull a strong, steady stroke, always using their backs, and maintain silence.
Way enough (or "In oars")	When landing in smooth water and sufficiently near the beach, the command, **Way enough** may be given, in which case the oars are tossed together to an angle of 45° and laid entirely within the boat, blades forward, between the men and the rail, with as little noise as possible. At the command **In oars,** the oars are hauled inboard, their looms

COMMANDS.	DUTIES.
	resting on the opposite rail, the men jump overboard on their respective sides and run the boat up on the beach. The life preservers are removed, the oars are laid in, blades forward, and the boat is loaded on the wagon in the reverse order of unloading.

(3) Going alongside a vessel, official occasion.

Stand by to toss. (Given instead of command "Way enough").....	Stand by to toss, the preparatory command, is given as a warning to the crew. The command **Toss** is given as the blades enter the water, and when the boat has sufficient headway to reach the gangway. The oarsmen complete the stroke and then toss the oars to a vertical position by pressing smartly on the handle with the inboard hand, raising the oar with the outboard hand under the loom. Lower handle of oar to bottom boards and hold the oars in a vertical position with the blades fore and aft. The inboard stroke and the inboard bow oarsmen lay their oars in the boat quickly, after assuming the vertical position, seize their boat hooks, assist to check headway and fend off and haul the boat alongside the gangway. The crew will remain at a toss until officers leave the boat; if it is then desirable to lay the oars in the boat it will be done by the command **Boat the oars**, at which each man lays his oar quickly and quietly in the boat, blades forward. (This command should not be given when there are overhanging obstructions from the ship which would be likely to foul the oars when they are in a vertical position.)

(4) **Leaving a vessel after official visit, oars boated.**

Commands:

1. Stand by the oars.
2. Up oars.
3. Shove off.
4. Let fall.
5. Give way together.
6. Way enough (or "In oars").

COMMANDS.	DUTIES.
Stand by the oars	Same as explained in paragraph 2 of this article.
Up oars	The oars, except the two bow and the inboard stroke oars, are tossed quickly to a vertical position, blades fore and aft and in line with that of the stroke oar, handles of oars on bottom boards, outboard hand grasping loom of oar at height of chin, wrist of inboard arm resting on inboard thigh, and steadying oar.
Shove off	This command is executed as described in paragraph 2 of this article. As soon as possible the inboard stroke oar lays aside his boat hook and gets up his oar without further command. If time permits, the bowmen get up their oars and await the command **Let fall.** If the command **Let fall** is given before their oars are up, they point their oars forward over the gunwale, lightly touch the blades, swing them out, and take up the stroke.
Let fall	Given when the boat is clear of the ship's side. At the command **Let fall** all the oarsmen raise their oars vertically, and drop the blades outboard into the rowlocks smartly and together, slipping the inboard hand to the handle of the oar, and come to the position **Oars** with both

COMMANDS.	DUTIES.
	hands on the handle. Under no circumstances should the blades be allowed to touch the water in letting fall.
Give way together	Same as described in paragraph 2 of this article.
Way enough (or "In oars")	Same as described in paragraph 2 of this article.

224. **Self-bailing surfboat on boat carriage at station provided with inclined launching ways.**

Commands:

1. Man the surfboat.
2. Take life preservers.
3. Let go.
4. Up oars.
5. Let fall.
6. Give way.

Man the surfboat	The crew climb into the boat; each man standing by his thwart.
Take life preservers	Each man quickly and quietly puts on and adjusts his life preserver, and then takes his seat in the boat. The officer grasps the steering oar.
Let go	The starboard bowman lets go the securing line and takes his seat on his thwart. At stations where the boat is kept on the carriage bow out, the officer will let go the securing line.
Up oars	Given as soon as the boat is clear of the boatroom doors. Each man grasps his oar and raises it to the position of **Toss**, and the officer rigs out steering oar and bears down on its handle.
Let fall	Given as soon as the boat is clear of the boat carriage. Each man drops his oar smartly into the rowlock without noise, and takes the position of **Oars**.
Give way	The crew give way as directed, the officer sheering the boat as he desires with the steering oar.

225. Explanations and purposes of special commands.

COMMANDS.	EXPLANATIONS AND PURPOSES.
Oars	*Explanation.*—Given when the blades are in the water. Finish that stroke and assume the position **Oars**, as described under **Out oars**, in paragraph 2, article 222.
	Purpose.—(1) To stop pulling. keeping the oars out. (2) To salute.
Trail	*Explanation.*—Given when blades are in the water. Finish the stroke, release the handle of the oar, allowing it to draw fore and aft and trail alongside. If no trailing lines are fitted, retain the handle of the oar in the hand.
	Purpose.—(1) To salute. (2) To pass obstructions. For the latter, the oars of either side may be trailed independently.
Face about—hold	*Explanation.*—The men face about, passing around the end of their oars and take seats on the next thwart aft, drop the blades of their oars into the water, and hold hard. The men on the after thwart kneel and hold hard. To get headway in the opposite direction, give the order **Give way.**
	Purpose.—(1) To exert full power in checking headway and stopping boat. (2) To exert full power in drawing away from an object. (3) To avoid a dangerous breaker when it is impossible or inadvisable to turn the boat.
Hold water	*Explanation.*—Given when blades are in the water. Cease pulling, drop the oars in the water, and hold the blades perpendicular to the keel line. With considerable way on, especially in a loaded boat, care in holding water is required to prevent carrying away the

COMMANDS.	EXPLANATIONS AND PURPOSES.
	rowlock or the oar. Under these conditions drop the oars in the water with the upper edges of the blades inclined forward and gradually bring the blades vertical as way is lost. The oars on either side may hold water independently.
	Purpose.—To check or stop headway or sternboard.
Stern all.....	*Explanation.*—Given from position of **Oars** or **Hold water.** The oars are backed, keeping stroke and feathering as when pulling ahead. Should not be givenwhen the boat has much headway. When the boat has headway the command **Stern all** should be preceded by **Oars** or **Hold water.**
	Purpose.—To acquire sternboard.
Back starboard (or port)..	*Explanation.*—Designated oars are backed as at **Stern all.** Should **Hold water** before backing if boat has much headway. If quicker action in turning is desired, the command **Face about port** (or **starboard**), **Give way together** should be given.
	Purpose.—To turn.
Back starboard, give way port (*or vice versa*).....	*Explanation.*—Given from the position of **Oars** or **Hold water.**
	Purpose.—To turn quickly when boat has little or no headway.
Stand by to toss. Toss...	*Explanation.*—Same as in paragraph 3 of article 222.
	Purpose.—(1) To salute. (2) In going alongside upon official visits to vessels.
Boat the oars.....	*Explanation.*—Given from the position of **Toss, OARS**, or **Trail.** Place the oars quietly and quickly fore and aft in the boat. This command may be given from any position.
	Purpose.—To get the oars into the boat.

COMMANDS.	EXPLANATIONS AND PURPOSES.
Point the oars	*Explanation.*—Stand facing aft, point the blades of the oars forward and downward to the beach at an angle of 30°, ready to shove off at the command. If the waves lift the stern of the boat, the united effort to shove off should be made just as her stern lifts.
	Purpose.—To shove off a grounded or beached boat.
Stand by to	*Purpose.*—When for any reason it may be desirable, the preparatory command **Stand by to ———** may precede any command of execution given in a boat. The preparatory for **Oars** is **Stand by to lay on the oars.**

CAPSIZING AND RIGHTING DRILL.

Being under oars, the officer in charge commands:

Capsize drill	Given as a warning.
In oars	The oars are boated and placed amidships, blades forward.
Lash oars	All pulling oars are lashed to the thwarts amidships, and the handle of the steering oar under the after thwart.
Man starboard (or port) righting lines	The righting lines are led across the boat to the opposite side, the men on each thwart manning the line belonging to their respective thwart.
Capsize	The men stand erect on the rail, haul back on the righting lines, and capsize the boat. After the boat is capsized the men immediately climb up on the bottom, carrying the righting lines with them, stand erect, and brace their feet against the keel.
Right boat	The men haul on the righting lines and right the boat, all climbing in as soon as possible, and taking their places on their proper thwarts.

COMMANDS.	EXPLANATION AND PURPOSE.
Unlash oars	The oars are unlashed and placed on the outward sides of thwarts. The officer shoves steering oar into place.
Out oars	Executed as prescribed in article 222, paragraph 2.

NOTE.—At each capsizing and righting drill the boat shall be capsized and righted several times.

DRILL FOR BOATS UNDER SAIL.

226. The principles of boat sailing are the same for all rigs. The use of the lee oars is dangerous when under sail; a slight gust of wind lowers the gunwale so as to prevent the oars being lifted from the water, thus "catching a crab," and the headway of the boat will cause the oars to fly violently fore and aft.

227. The officer in charge shall never permit anyone to climb the masts of a boat. If halyards, etc., are unrove unstep the mast. No person shall be permitted to stand in a boat under sail; this does not apply to the helmsman of a motor lifeboat under sail.

228. Going alongside under sail requires care, judgment, and experience. In the first place it should not be attempted if a boat or other obstruction which the masts could touch, overhangs the gangway, nor in rough weather when the rolling motion of the boat would cause the masts to strike the ship. In such cases the masts should be unstepped and the boat brought alongside under oars.

229. If the ship is riding to a windward tide, approach the gangway from abaft the beam, tend all gear and shorten sail when the boat has sufficient way to reach the gangway. The bow and stroke oarsmen tend boat hooks, and the other men perform their duties in shortening sail.

230. If the ship is riding to the wind, approach the gangway from about abeam, tend all gear, bow and stroke oarsmen stand by the boat hooks; when there is sufficient way to make the gangway, command: **Stand by to shorten sail, Shorten sail** (if but one mast). If two masts, command: **In jib and foresail.** The jib tack and sheet are let go, the jib is smothered into the foremast; lower the foresail, at the same time putting the tiller hard down, haul main sheet amidships or a little on the weather quarter. This throws the boat's head into the wind, and hauling the main sheet to windward deadens her headway when desirable. When alongside, command: **In mainsail.** Stow sails and unstep if desirable. The

above is the surest and safest method, but with skillful handling all sails may be taken in together, the tiller put hard down, and the boat rounded up to the gangway. This requires more skill and judgment and should not ordinarily be attempted.

231. If there is any current, make allowance for it by heading for a point farther forward or aft, as the case may be.

Motor Lifeboat Under Sail.

235. The boat being under oars or power, to make sail:

COMMANDS.	DUTIES.
Way enough	Oars are boated or engine stopped.
Stand by to step	The starboard oarsmen launch the mainmast forward until heel of mast is even with step; raise masthead. Similarly port oarsmen launch foremast to position and raise masthead. All crew remain seated whenever their duties will permit.
Step the masts	Stroke oars guide heel of mainmast into step. Bow oars guide heel of foremast into step. Starboard oarsmen stand on deck and raise mainmast. Port oarsmen stand on deck and raise foremast. Bow and stroke oarsmen secure mast clamps and cast off shrouds and set them up.
Loose sail	No. 1 stroke oarsman casts off sheet from mainsail and takes place in strern sheets with main sheet in hand. No. 2 stroke oarsman mans the mainsail halyards. No. 1 reports when all is ready aft. No. 7 casts adrift fore sheet and passes it aft to No. 3. No. 5 mans the foresail halyards. No. 8 casts adrift jib halyards, hauls head of jib down to deck, hooks and mans jib halyards. No. 7 sets up jib tack and passes sheets aft on each side to No. 4. No. 7 reports when all is ready forward.

COMMANDS.	DUTIES.
With starboard (or port) sheet. Make sail.....	Jib, foresail, and mainsail are hoisted chock up. The men convenient to the sheets haul them aft on designated side and tend them. Bowmen keep bright lookout ahead, fully informing the officer of the proximity of obstructions or approaching vessels.

236. **To Tack.**

Ready about.....	Given as a warning for the crew to prepare for the evolution. The officer gives the boat a good full, waits for a smooth time, then eases down the tiller. At the same time the man tending the main sheet hauls it amidships slowly. (Do not haul it across the amidship line, for it then acts as a back sail.)
Ease off the jib sheet.....	Given when jib begins to shiver.
Let go fore sheet.....	Given when foresail ceases to draw. If boat seems inclined to stop head to wind, haul jib sheet to windward; the jib will be taken aback and pay her head around. If the boat gathers sternboard, shift the tiller.
Shift over main sheet.....	When wind is ahead, shift over the main sheet and stand by to haul it aft when well around on the new tack.
Haul aft fore and jib sheets.....	As soon as the bow of the boat has passed the wind, haul aft fore and jib sheets, leaving the main sheet slack until boat is well around, then trim by the wind. If the boat falls off too far from the wind, haul aft main sheet and keep jib sheet flying until she is brought up by the foresail and the mainsail and the tiller. When nearly high enough, haul aft the jib sheet and trim her by the wind.

237. **To Wear.**

COMMANDS.	DUTIES.
Stand by to wear	Given as a warning for the crew to prepare for the evolution. Officer puts the tiller up when ready.
Ease off main sheet	Given as the boat's head pays off, in order to get the maximum effect of the mainsail in increasing her headway. Keep fast the fore and jib sheets until wind is abeam, as they help pay her head off.
Ease off fore and jib sheets	Given when wind is a little abaft the beam. Slack the sheets off gradually.
In mainsail	Given when wind comes nearly aft. Haul down the mainsail.
Shift over sheets	Given when wind is aft. Stand by to haul all sheets aft on the other side.
Set mainsail	Given when wind is slightly on new weather quarter. Set mainsail and haul it flat aft. Leave other sheets flying, or smothered in to mast, so she will come up rapidly.
Haul aft fore and jib sheets	Given as the boat comes by the wind on new tack. Haul both sheets flat aft.

NOTE.—If wearing in a light to gentle breeze, it is unnecessary to take in the mainsail, but in a moderate breeze, or anything stronger, it should always be done on account of danger from gybing.

With a sprit rig, put tiller up and ease off sheets. When the wind is nearly aft, trim in main sheet to avoid danger from gybing violently. In anything stronger than a gentle breeze, sprit-rigged boats should always be tacked to avoid this danger. If absolutely necessary to gybe a sprit-rigged boat in a fresh breeze, the peak should be dropped in addition to hauling in the main sheet.

238. **To Heave to.**

COMMANDS.	DUTIES.
Stand by to heave to	Given as a warning for the crew to prepare for the evolution. Officer brings boat by the wind and keeps tiller a-lee.

COMMANDS.	DUTIES.
Haul main sheet flat aft. Haul aft weather jib sheet. In foresail...	These commands are given simultaneously, and are obeyed by the men at their various stations. In heavy weather the foresail shall be taken in; in light breezes the fore sheet may be simply slacked off. If the bow falls off, slack away jib sheet. The boat in this condition should lie dead in the water, wind about abeam.

239. **To Get Underway from Heave to.**

Make sail.....	Haul aft fore and jib sheets and set foresail, ease the tiller, and ease off the main sheet.

240. **To Reef Sail.**

Stand by to reef.....	Given as a warning for the crew to prepare for the evolution. Tend fore and main halyards. Officer brings boat by the wind.
Slack down fore and main halyards.....	Officer luffs slightly, but not enough to cause boat to lose headway. Fore and main halyards are slacked down about 18 inches.
Reef sail.....	Pass the reef earings from the reef cringles to the tack bands. The earings in the leeches should be tightly bound around the foot of the sails. Pass reef points around foot of sail. No. 7 reports "All ready forward."
Hoist away.....	Given when sails are reefed and all is ready. Men at halyards hoist sails and officer lays boat on desired course. Always keep boat under control, if possible, while reefing. Reef whenever boat begins to take in water over lee rail. Never be afraid of reefing too soon.

241. To Douse Sail.

COMMANDS.	DUTIES.
Stand by to shorten sail	Given as a warning for the crew to stand by their stations. Tend all halyards.
Shorten sail	Slack away all halyards until sails are lowered into boat. Men sit on thwarts awaiting next command.
Furl sails	Bowmen and stroke oarsmen, assisted by Nos. 5 and 6, and 3 and 4, respectively, unhook yard from traveler and tack from tack band, and then furl sails on foot, making smooth skin and rolling sails up to yards, which should be left out and clear. Use sheets for furling lines. The jib should be rolled up with the foresail, having unhooked halyards and tack. Secure traveler bands to tack bands, and lower jib halyard block to tack band on foremast.
Prepare to unstep	Come up shroud tackles, and secure shrouds and tackles around masts. Nos. 1 and 7 report when all is ready for unstepping.
Stand by; unstep	Make a slight pause between these commands. The starboard oarsmen seize the mainmast, and the port oarsmen the foremast. The stroke and bow oarsmen unclamp the mainmast and the foremast, respectively. The masts are lifted vertically (inclining each in the direction it is to be lowered) until heels are clear of the tenons and then lowered into boat, the foremast on port side, and mainmast on starboard side. Men quickly take seats on thwarts.

242. General Rules for Boats Under Sail:

1. Never be afraid to reef in good time.
2. Always see sails well set, and trimmed according to the direction of the wind.
3. See that sheets are never belayed.
4. See that crew is properly stationed for making and shortening sail, reefing, and tacking.
5. Trim boat by shifting crew or ballast as required.
6. Make the crew sit on the thwarts. In stepping and unstepping masts and making sail, no one will stand up, except when absolutely necessary, and even then only on bottom boards or deck of the boat.
7. Remember that a loaded boat carries more way than an empty one.
8. In going alongside, allow plenty of room for rounding to. Unstep the masts as soon as sail is lowered. If you are not likely to go alongside in a seamanlike fashion, tack or wear and try again.

MANAGEMENT OF BOATS IN A SURF, BEACHING THEM, ETC.

243. The following rules are published by the Royal National Lifeboat Institution of Great Britain:

I. *Rowing to seaward.*—(1) As a general rule, speed must be given to a boat rowing against a heavy surf. Indeed, under some circumstances, her safety will depend upon the utmost possible speed being attained on meeting a sea. For if the sea be really heavy and the wind blowing a hard, onshore gale, an approaching heavy sea may carry the boat away on its front and turn it broadside on or upend it. A boat's only chance in such a case is to obtain such a way as shall enable her to pass end on through the crest of a sea and leave it as soon as possible behind her. If there be a rather heavy surf, but no wind, or if the wind is offshore and opposed to the surf, as is often the case, a boat may be propelled so rapidly through it that her bow would fall more suddenly and heavily after topping the sea than if her way had been checked; it may, therefore, be only when the sea is of such magnitude and the boat of such character that there may be chance of the former carrying her back before it that full speed should be given to her.

(2) It may also happen that by careful management a boat may be made to avoid the sea, so that each wave may break ahead of

her, which may be the only chance of safety in a small boat, but if the shore be flat and the broken water extend to a great distance from it this will often be impossible.

The following general rules for rowing to seaward may be relied upon:

a. If sufficient command can be kept over a boat by the skill of those on board her, avoid the sea if possible, so as not to meet it at the moment of its breaking or curling over.

b. Against a head gale and a heavy surf, get all possible speed on a boat on the approach of every sea which can not be avoided.

c. If more speed can be given to a boat then is sufficient to prevent her from being carried back by a surf, her way may be checked on its approach, which will give her an easier passage over it.

II. *Running before a broken sea, or surf, to the shore (flat beach).*—(1) The one great danger when running before a broken sea is that of "broaching to." To that peculiar effect of the sea, so frequently destructive of human life, the utmost attention must be directed. The cause of a boat's broaching to when running before a broken sea or surf is that her own motion being in the same direction as that of the sea she opposes no resistance to it, but is carried before it. Thus, if a boat be running bow on to the shore and her stern to the sea, the first effect of the surf or roller on its overtaking her is to throw up her stern, and, as a consequence, to depress the bow; if she then have sufficient inertia (which will be proportional to weight) to allow the sea to pass her, she will in succession pass through the descending, the horizontal, and the ascending positions as the crest of the wave passes successively her stern, her midships, and her bow, in the reverse order in which the same positions occur in a boat propelled to seaward against the surf. This may be defined as the safe mode of running before a broken sea.

(2) But if a boat, on being overtaken by a heavy surf, has not sufficient inertia to allow it to pass her the first of the three positions alone occurs—her stern is raised high in the air and the wave carries the boat before it, on its front or unsafe side, the bow deeply immersed in the hollow of the sea, where the water, being stationary, or comparatively so, offers a resistance; while the crest of the sea, having the actual motion which causes it to break forces onward the rear end of the boat. A boat in this position will sometimes, aided by careful oar steerage, run a considerable distance until the wave has broken and expended itself. But it will often happen that, if the bow be low, it will be driven under water, when

the buoyancy being lost forward, while the sea presses on the stern, the boat will be thrown end over end; or, if the bow be high or protected by a bow air chamber, so that it does not become submerged the resistance forward acting on one bow will slightly turn the boat's head, and the force of the surf being transferred to the opposite quarter she will in a moment be turned broadside to the sea and be thrown by it on her beam ends, or altogether capsized. It is in this manner that most boats are upset in a surf, especially on flat coasts.

(3) Hence it follows that the management of a boat, when landing through a heavy surf, must, as far as possible, be assimilated to that when proceeding to seaward against one, at least so far as to stop her progress shoreward at a moment of being overtaken by a heavy sea and thus enabling it to pass her. There are different ways of effecting this object:

a. By turning a boat's head to the sea before entering the broken water and then backing in, stern foremost, pulling a few strokes ahead to meet each heavy sea, and then again backing astern. If a sea be really heavy and a boat small this plan will be generally safest, as a boat can be kept more under command when the full force of the oars is used against a heavy surf than by backing them only.

b. If rowing to shore with the stern to seaward by backing all the oars on the approach of a heavy sea and rowing ahead again as soon as it has passed to the bow of the boat, thus rowing in on the back of the wave; or, as is practiced in some lifeboats, placing the after oarsmen with their faces forward and making them row back at each sea on its approach.

c. If rowed in bow foremost by towing astern a pig of ballast or a large stone, or a large basket, or a canvas bag termed a "drogue," or drag, made for the purpose, the object of each being to hold the boat's stern back and prevent her being turned broadside to the sea or broaching to.

d. Heavy weights should be kept out of the extreme ends of the boat, but when rowing before a heavy sea the best trim is deepest by the stern, which prevents the stern being readily driven off by the sea.

e. When running before a sea, a boat should be steered by an oar over the stern or on one quarter.

(4) General rules for running before, or attempting to land through, a heavy surf or broken water:

a. As far as possible avoid each sea by placing the boat where the sea will break ahead of her.

b. If the sea be very heavy, or if the boat be small, and especially if she has a square stern, bring her bow round to seaward and back her in, rowing ahead against each heavy surf sufficiently to allow it to pass the boat.

c. If it be considered safe to proceed to the shore bow foremost, back the oars against each sea on its approach, so as to stop the boat's way through the water as far as possible, and if there is a drag, or any other appliance in the boat which may be used as one, tow it astern to aid in keeping the boat stern-on to the sea, which is the chief object in view.

d. Bring the principal weight in the boat toward the end that is to seaward, but not to the extreme end.

e. If a boat worked by both sails and oars be running under sail for the land through a heavy sea, her crew should, unless the beach be quite steep, take down her sails and masts before entering the broken water, and take her to land under oars alone, as above described. If she have sails only, her sails should be much reduced, a half-lowered foresail or other small headsail being sufficient.

III. *Beaching or landing through a surf.*—(1) The running before a surf or broken sea, and the beaching or landing of a boat, are two distinct operations; the management of boats, as above recommended has exclusive reference to running before a surf where the shore is so flat that the broken water extends to some distance from the beach. On a very steep beach the first heavy fall of broken water will be on the beach itself, while on some very flat shores there will be broken water extending 4 or 5 miles from the land. The outermost line of broken water, on a flat shore, where the waves break in 3 or 4 fathoms of water, is the heaviest, and therefore the most dangerous; and when it has been passed through in safety the danger lessens as the water shoals, until on nearing the land its force is spent and its power is harmless. As the character of the sea is quite different on steep and flat shores, so is the customary management of boats on landing different in the two situations.

(2) *On the flat shore*, whether a boat be run or backed in, she is kept straight before or end-on to the sea until she is fairly aground, when each surf takes her farther in as it overtakes her, aided by the crew, who will then generally jump out to lighten her and drag her in by her sides. As above stated, sail will, in this case, have been previously taken in, if set, and the boat will have been rowed or backed in by the oars alone.

(3) *On a steep beach*, it is the general practice, in a boat of any size, to sail right onto the beach, and in the act of landing, whether under oars or sail, to turn the boat's bow half around toward the direction in which the surf is running, so that she may be thrown on her broadside up the beach, where help is usually at hand to haul her as quickly as possible out of the reach of the sea. In such situations, we believe it is nowhere the practice to back a boat in stern foremost under oars, but to row in under full speed, as above described.

LANDING IN A HEAVY SURF IN A MOTOR SURFBOAT.

244. The following general rules may be relied on:

(*a*) That a motor surfboat should enter the surf at a moderate speed with the rudder unshipped, steering oar in place, and an oar out on each quarter to assist in steering. It is safest to stop the engine and land under oars, particularly if the surf is dangerous and is breaking close to the beach. Care should be taken to keep the boat's stern to the sea. If the sea gets on the quarter, there will be a tendency to broach to.

(*b*) That the drogue should be used in landing in a heavy surf, and that a long drogue rope is preferable to a short one, except when working through broken water, as when on a shoal. The drogue should be tended by a surfman with a hatchet, ready to cut the tripping line, and the drogue rope also, if circumstances warrant and the drogue rope is not long enough, if slacked off, to permit the boat to reach the beach. It sometimes happens, when a boat is running true, that the drogue, even when tripped, will hold the boat back at a time when she should go as fast as possible on the sea selected for landing. A strain should be kept on the drogue rope, as a slack rope is likely to foul the propeller.

(*c*) Backing the engine in a surf is dangerous, as it will cause the stern to deviate from a right angle to the surf.

(*d*) Weights should be so distributed as to trim the boat by the stern, so that it will drag.

(*e*) Oil will be found to be of great assistance in landing through a heavy surf. Fish oil is best for this purpose. Oakum or cotton waste saturated with it may be carried in the conical end of the drogue, or in an oil bag made fast near the drogue. The container should be pricked with a roping needle to permit the oil to escape.

THE DROGUE, OR DRAG.

245. (1) *Purpose of.*—The drogue, or drag, is used to check a boat's way and keep her end-on to the sea. When running before a heavy sea or landing through a dangerous surf it will prove of the greatest assistance. If caught in a gale in an open boat the drogue may be used as a sea anchor to keep the boat head-on to the sea. In such cases, if there is oil in the boat, secure a bag of it to the drogue.

(2) *Description.*—Drogues furnished Coast Guard stations shall be of two sizes; the larger for use in motor lifeboats and the smaller for use in surfboats, as follows:

a. *Large-sized drogue.*—To be of No. 5 cotton canvas, cone shaped, 24 inches in diameter at the mouth, 4½ feet long, evenly tapered to a point, the cone to be in four equal sections joined by round seams, the sewing to be on the inside. Around the inside of the mouth shall be a 1-inch tabling, hand sewed, and roped with 1½-inch manila. Two bails of 1-inch manila rope shall be roped on to the four seams of the drogue, passing the whole length of the drogue and crossing each other 2 feet beyond the mouth, where they will be seized into a galvanized thimble with a ¾-inch opening. Both bails shall pass continuously around the drogue, and into the bight of the outer bail there shall be seized close to the apex a galvanized-iron thimble with ½-inch opening. The ends of the lines forming the bails shall be spliced with a long splice. A holding line of 1½-inch manila, 10 fathoms long, shall be spliced into the bail thimble at the mouth, and a tripping line of 12-thread manila, 15 fathoms long, shall be spliced into the bottom thimble, the ends of the lines securely whipped.

b. *Small-sized drogue.*—To be of No. 6 cotton canvas, cone shaped, 15 inches in diameter at the mouth, 30 inches long, and fitted in all respects as prescribed for the large-sized drogue.

c. The drogue-holding rope should be marked with a red rag tucked through the lay at the point where it is belayed.

246. *Use of the drogue.*—(1) When the drogue is used over the stern, No. 1 tends the drogue lines. Care shall be taken that the holding and the tripping lines do not foul each other.

(2) *To check the headway* of the boat, No. 1 sees the lines clear and throws the drogue over when directed by the officer (being careful that the lines do not foul the propeller when used in a motor boat). Slack out the holding line to the desired length and take a turn with it to a cleat on the starboard side as near the sternpost as possible

(in lifeboats make the line fast to the starboard bollard just forward of the after end box). Slack out the tripping line at the same time as the holding line, keeping it free from strain, and make fast the tripping line forward of the holding line. The ends of both the holding and the tripping lines must be secured to the boat to prevent the outer end from being run out.

(3) *If headway is desired*, slack out on the holding line until the tripping line, which is secured forward of the holding line, capsizes and empties the drogue, towing it apex forward. Conversely, when it is desired to check headway when the drogue is being towed by the tripping line, slack out on tripping line until the drogue is capsized and towed mouth forward by the holding line.

(4) *Before entering a dangerous surf* the drogue should be dropped overboard and towed with the apex forward, the tripping line being belayed on its bight. Should it become necessary to check the headway, throw off the bight of the tripping line.

(5) *If the drogue is used over the bow*, it shall be handled in a similar manner, No. 7 putting the drogue over and tending the lines.

247. *Boat sail bent to a yard used as a drogue.*—A boat sail bent to a yard, loosed and towed astern, the yard being attached to a line capable of being veered, hauled, or let go, will act in some measure as a drogue, and will tend much to break the force of the sea immediately astern of the boat.

Boarding a Vessel Stranded or Afloat in a Heavy Sea.

251. (1) Whenever practicable, a vessel, whether stranded or afloat, should be boarded from to leeward, as the *principal* danger is that the boat may collide against the vessel or be swamped or upset by the rebound of the sea, and the greater violence of the sea on the weather side of the vessel renders such accidents more liable to occur on that side. The danger will be still further increased when the vessel is aground and the sea breaking over her.

(2) *If a stranded vessel* is broadside to the sea, the chief danger in boarding to leeward is the possible falling of the masts, or that the boat may be stove by the wreckage alongside. Under such circumstances it may be necessary to take a wrecked crew into a lifeboat from the bow or stern of the wreck. In boarding a wreck that is stranded on a flat shore, lifeboats usually anchor to windward with a long scope of cable, so that the boat will drift either under the bow or stern, whichever point is advisable, taking care that the boat does not come abreast of the hull by using all the oars except the two after

ones, whose men will send a good line on board the wreck with a heaving stick for use of the wrecked people as a traveler, or to be tied around their bodies before jumping overboard. The greatest care, under these circumstances, must be taken to prevent actual contact between the boat and the ship, and the crew of the latter sometimes have to jump overboard and to be hauled to the boat by ropes. The greatest danger is in the anchor dragging or the cable breaking; to avoid this the strain must be relieved as much as possible by use of the oars.

(3) *In every case of boarding a wreck or a vessel at sea* it is important that the lines by which the boat is made fast to the vessel should be of sufficient length to allow of her rising and falling freely with the sea, and every rope should be kept in hand ready to cut or slip in a moment if necessary. On wrecked persons or other passengers being taken into a boat in a seaway they should be placed on the thwarts in equal numbers on either side and be made to sit down. All crowding or rushing headlong into the boat should be prevented, as far as possible, and the captain of a ship, if a wreck, should be called on to remain on board to preserve order until every other person has left her.

Rescuing People from a Drifting Wreck at Sea.

254. (1) In rescuing people from a drifting wreck, approach from leeward, taking care to avoid wreckage floating alongside.

(2) If there is much wind and the sea is breaking over the wreck, it is advisable to send a good line on board, using the heaving stick. Have the people secure the line around their bodies and jump overboard, one at a time. The boat's crew will haul them into the boat as rapidly as possible.

(3) Should it become necessary to go alongside, head bow-on for the lee side of the wreck, selecting an unobstructed part. Boat the bow oars and have the other men *Face about*, to keep the boat from touching the wreck. One bowman will use his boat hook to keep the boat clear, while the other man will assist the people into the boat.

(4) An exception to the rule of boarding a vessel to leeward is a vessel with a low freeboard, with booms, etc., over the side. Such vessels should be boarded on the weather quarter, the boat's crew being in the same positions as prescribed in paragraph 3 of this article.

Sound Signals for a Fog.

261. (1) In fog, mist, falling snow, or heavy rainstorms, whether by day or night, a power boat makes the following signals at intervals of not more than one minute:

a. If underway and not towing or being towed, a prolonged blast of two or more seconds on the whistle or fog horn.

b. If underway and towing, three blasts in succession on the whistle or fog horn, namely, one prolonged blast followed by two short blasts.

c. If at anchor, ringing of the bell for about five seconds.

(2) A power boat is underway within the meaning of these rules when she is not anchored or made fast to the shore or a ship, or aground.

Speed in Fog.

262. Boats shall, in a fog, mist, falling snow, or heavy rainstorm, go at moderate speed.

Steering and Sailing Rules.

263. (1) When two boats under sail are approaching one another so as to involve risk of collision, one of them shall keep out of the way of the other, as follows:

a. A boat which is running free shall keep out of the way of a boat which is close-hauled.

b. A boat which is close-hauled on the port tack shall keep out of the way of a boat which is close-hauled on the starboard tack.

c. When both are running free, with the wind on different sides, the boat which has the wind on the port side shall keep out of the way of the other.

d. When both are running free, with the wind on the same side, the boat which is to windward shall keep out of the way of the boat which is to leeward.

e. A boat which has the wind aft shall keep out of the way of other boats.

(2) When two boats under power or oars are meeting end-on, or nearly end-on, so as to involve risk of collision, each shall alter her course to starboard so that each may pass on the port side of the other.

(3) When two boats under power or oars are crossing so as to involve risk of collision, the boat which has the other on her own starboard side shall keep out of the way of the other.

(4) When a boat under power or oars and a boat under sail are proceeding in such directions as to involve risk of collision, the

boat under power or oars shall keep out of the way of the boat under sail.

(5) Where by any of these rules one of the two boats is to keep out of the way, the other shall keep her course and speed.

(6) Every boat which is directed by these rules to keep out of the way of another boat shall, if the circumstances of the case admit, avoid passing ahead of the other.

(7) Every boat under power which is directed by these rules to keep out of the way of another boat shall, on approaching her, if necessary, slacken her speed or stop or reverse.

(8) Every boat, whether under power, oars, or sail, when overtaking any other shall keep out of the way of the overtaken boat.

(9) Any boat under power approaching another which is in sight of her shall indicate what course she intends to take by the following signals on her whistle:

a. One short blast to mean "I am directing my course to starboard."

b. Two short blasts to mean "I am directing my course to port."

c. Three short blasts to mean "My engines are going at full speed astern."

d. The words "short blast" to mean a blast of about one second's duration.

(10) In a narrow channel every boat under power or oars shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such boat.

(11) Whenever a boat under power is nearing a short bend or curve in a river or harbor she should give a long blast on the steam whistle.

(12) Due regard shall be had to all dangers of navigation and collision and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

SIGNALS.

Methods.

271. The United States Coast Guard Signal System comprises the Semaphore Code, the Dot and Dash Code, and the International Code.

272. In communicating between units of the Coast Guard or with units of the United States Navy the following methods of signaling are employed:

Wigwag (day and night signals).—Dot and Dash Code.

Flashing light (night).—Dot and Dash Code.
Semaphore (day).—Semaphore Code.
Flag signals (day).—International Code.

273. In communicating between units of the Coast Guard and merchant vessels the International Code and such other of the codes named in the preceding article as meet the needs of the case may be used. Call letters shall be used only between units of the Coast Guard.

INSTRUCTIONS.

275. The International Morse Code shall be used in communicating by wigwag and flashing light methods.

276. A signal drill shall be either a recitation or a practice, or both. A recitation shall embrace the questions and answers on the wigwag, flashing light, and semaphore methods, in the appendix of this book, as well as practice with wands or small flags indoors.

277. Practice drills in wigwag and in semaphore shall be held with the regulation flags, and out of doors, the men being paired off beyond ordinary hearing distance of each other. Each man shall be required to send to and receive from the other a collection of words containing all the letters of the alphabet prepared by the officer in charge. The necessary communications between sender and receiver will be carried on by means of procedure signs, and no conversation will be permitted. Each man will be provided with a pencil and paper for recording the words sent to him, which record he shall hand to the officer at the end of the practice. The officer shall compare each record with the words sent. Practice in flashing light shall be held twice each week. In using the practice set care shall be taken that the men do not rely on the ear instead of the eye in reading. To prevent this the person reading should be out of hearing of the "click" of the instrument. Officers interested in the proficiency of their crews will find means of accomplishing this. When practicing with the large flashing light set at short distances, the insertion of a dark substance, such as a piece of emery paper, between the bulb and the reflector has been found effective in overcoming the blinding glare of the reflector. This substance is not to be used when signaling to any distance and must be removed from the box immediately after the practice drill is over.

278. The crew shall become proficient in wigwag, semaphore, and flashing light signaling. Members of the crew who are not proficient in these different methods shall be required to practice each day

except Saturday and Sunday. Those who do not learn after a reasonable time shall be reported as deficient.

279. The tests for proficiency and expertness in the wigwag semaphore, and flashing-light methods shall be conducted with three men, namely, a sender, a receiver, and a recorder. The receiver shall receive and call out the meanings of the signals sent and the recorder shall record them. Test messages for determining proficiency and expertness in these methods shall consist of not less than 17 words averaging 5 letters each and of 3 numbers averaging 5 figures each, except in the semaphore test, which shall consist of not less than 20 words averaging 5 letters each. Every test message shall contain all the letters of the alphabet and, when numbers are included, all the figures between 0 and 9. Each figure in a message shall be counted as a letter. No person shall be considered as proficient or expert in these methods unless he can also send correctly at the requisite speed. (See arts. 297, 304, and 314.)

280. No drill, except a drill in night signals, shall be regarded as practice, or recorded in the log as such, unless it be held out of doors with regulation flags. All other exercises in signals shall be recorded in the log as recitations.

281. All messages, except in regular signal drill, should be recorded by a second signalman, or other person, as the words or characters are called out by the person receiving the signal. This rule is general.

282. A message in which a few words have been lost should never be guessed at. If only a part of a word has been understood, the proper "repeat" sign should be made immediately. The receiver should not wait until the message is complete and then depend on guessing the part lost. If the message is not perfectly clear, or if the receiver thinks he may have made a mistake, he should make the proper "repeat" sign after the last word he is sure of. It will seldom be necessary to repeat the whole message if this rule is observed; but if the receiver fails to "break" the sender immediately after losing a part of the message he will cause the sender unnecessary signaling.

283. In all signaling skill and rapidity must always be regarded as secondary to accuracy, though after accuracy has been attained the relative skill of signalmen is shown by the rapidity with which they can accurately receive messages.

The Dot and Dash Code.

285. The Dot and Dash Code comprises the alphabet and numerals of the International Morse Code, together with certain additional procedure signs as follows:

ALPHABET.

A . —	J . — — —	S . . .
B — . . .	K — . —	T —
C — . — .	L . — . .	U . . —
D — . .	M — —	V . . . —
E .	N — .	W . — —
F . . — .	O — — —	X — . . —
G — — .	P . — — .	Y — . — —
H	Q — — . —	Z — — . .
I . .	R . — .	

NUMERALS.

1 . — — — —	5	8 — — — . .
2 . . — — —	6 —	9 — — — — .
3 . . . — —	7 — — . . .	0 — — — — —
4 . . . . —		

PROCEDURE SIGNS.

Full stop sign.....$\overline{\text{AAA}}$ made as one sign (. — . — . —).
Finale sign.....$\overline{\text{AR}}$ made as one sign (. — . — .).
Finish sign.....$\overline{\text{VA}}$ made as one sign (. . . — . —).
Erase sign.....E made separately about 10 times (. . . . . .).
Group sign.....GR made separately (— — . . — .).
Break sign.....II made separately (. . . .).
Repeat sign.....$\overline{\text{IMI}}$ made as one sign (. . — — . .).
Repeat all before (word or group).....$\overline{\text{IMI}}$ AB (word or group).
Repeat from (word or group) to (word or group).....(Word or group) II $\overline{\text{IMI}}$ II (word or group).
Repeat all after (word or group).....$\overline{\text{IMI}}$ AA (word or group).
Repeat word after ——...$\overline{\text{IMI}}$ WA (word) AR.

Repeat all before group No. —.....IMI AB (No.).
Repeat from group No. — to group No. —.....(No.) II IMI II (No.).
Repeat all after group No. —.....IMI AA (No.).
Repeat group No. —.....IMI GR (No.).
Repeat group No. — and group No. —.....IMI GR (No.) II GR (No.).
Interrogatory sign.....INT made as one sign (. . — . —).
Preliminary executive sign.....IX made as one sign (. . — . . —).
Executive sign.....Flash (10 sec.).
Time of receipt sign.....TOR made separately (— — — — . — .).
Unofficial sign.....UN made separately (. .— — .).
Received sign.....R (. — .).
Word after sign.....WA made separately (. — — . —).

WIGWAG.

291. Wigwag employs the International Morse Alphabet, numerals, and special Morse signs. A motion through an arc of 90° to the sender's right represents a "dot," and a similar motion to the left a "dash." The only signs peculiar to wigwag are:

(a) The "attention" sign, i. e., the flag waved back and forward overhead and

(b) The "break" sign, i. e., a motion to the front.

292. A hand flag, a hand light, or a searchlight beam is used. The sender should face the receiver squarely. The motions for the dot and dash should be made at right angles to the line of transmission, and for the "brk" from the vertical position through an arc of 135° in the direction of the line of transmission. In order to keep the flag fully exposed the point of the staff should be made to describe an elongated figure 8. In case a hand light is used, it is desirable to have a reference light at the sender's feet. An oil lantern may more conveniently be swung outward and upward. It is important to obtain

a good background and to select a flag the colors of which present the most marked contrast with the background.

293. The prescribed calls may be supplemented by flag-hoist calls as in semaphore. The procedure prescribed for semaphore shall be followed.

294. While slower than semaphore, a large wigwag flag against a good background may be read at a greater distance than semaphore.

295. To call a ship or station face it squarely and make its call, either by flag hoist and "attention," by "attention" alone, or by "attention" followed by letter or letters abbreviating the name of the unit for which the dispatch is intended. The receiving unit, if the call be by flag hoist, answers the call by hoisting the answering pennant under the call of the transmitting unit at the dip as soon as seen and two blocked when ready to receive and record. If the call be by other than flag hoist, the receiving unit repeats the call as made by the transmitting unit, followed, if necessary, by three or four letters abbreviating the name of the transmitting unit. The transmitting unit then makes the break sign, followed by **GR** and number of groups or words, then makes break, followed by **BT**, if text is in code, and proceeds with text of dispatch. The receiving unit will, when the call and answer is by flag hoist, immediately dip the answering pennant if a word or sign is missed. If the call be other than by flag hoist, it makes "repeat" (IMI). The transmitting unit at the conclusion of the dispatch makes "break," and then makes AR and hauls down the flag call, if used. The receiving unit acknowledges the receipt of the dispatch (*a*) if the call and answer be by flag hoist, by hauling down the answering pennant when the transmitting unit hauls down the call, (*b*) if the call and answer be other than by flag hoist, makes "**R** break VA."

296. If, in the course of a signal the sender discovers that he has made an error, he should make the "erase" sign, then make the last word or group which was correctly transmitted and continue with the signal or dispatch. If, in the course of a signal addressed to a unit, the receiver does not understand a word, character, or display, he should break in with the proper repeat sign.

297. (1) The standard of proficiency for a person receiving wigwag signals in a test for proficiency shall be 18 letters per minute, 85 per cent of the letters being correctly received and recorded. The standard of expertness for such a person shall be

25 letters per minute, all the letters being received and recorded without error.

(2) The standard of proficiency for a person sending wigwag signals with hand flags shall be 18 letters per minute and the standard of expertness for such person shall be 25 letters per minute, all letters being sent correctly in either case. (See art. 279.)

(3) Should the tests be made with wands or small flags the standard of proficiency for a person sending wigwag signals shall be 18 letters per minute and the standard of expertness for such person shall be 24 letters per minute. In either case, all the letters composing the test shall be sent correctly.

The small flags referred to herein are flags the size of hand semaphore flags.

Flashing Light.

301. The Dot and Dash Code is used for this method. A short flash is used for a "dot" and a long flash for a "dash."

302. In transmitting dispatches the transmitting unit makes the call of the unit for which the dispatch is intended several times or until repeated. The receiving unit repeats the call as made by the transmitting unit. The transmitting unit then makes its own call until repeated and the receiving unit repeats the call of the transmitting unit. The transmitting unit then makes break (**II**), the receiving unit answers with a flash; the transmitting unit then makes "**GR**" followed by the number of words or groups, which the receiving unit answers with a flash; the transmitting unit then makes "break" (**II**) if text is in plain language, $\overline{\text{BT}}$ if text is in code, and the receiving unit answers with a flash; the transmitting unit then transmits text of the dispatch (including office and date number and time of origin number), and the receiving unit answers each word or group with a flash. At the end of the dispatch the transmitting unit makes "finale" sign ($\overline{\text{AR}}$), or if there are further dispatches to transmit to the same receiving unit, the transmitting unit makes $\overline{\text{AR}}$ **II B**; the receiving unit, if dispatch has been received, makes "**R II** $\overline{\text{VA}}$." If the transmitting unit indicates that there are further dispatches for the same receiving unit, the receiving unit answers such signal with "**R II K**" or "**R II Q**," as circumstances demand.

303. Officers in charge of stations with a standard night signal set shall require the station lookouts to call adjoining stations within signal distance at irregular intervals during the night, and

will note in the log when such calls are not promptly acknowledged. They will encourage men not on lookout duty to practice night signaling with men belonging to adjoining stations, but such practice must not interfere with the duties of the lookout.

304. (1) The standard of proficiency for a person receiving flashing light signals in a test for such proficiency shall be 30 letters per minute. The standard of expertness for such person shall be 60 letters per minute. In either case, at least 85 per cent of the letters sent shall be correctly received and recorded.

(2) The standard of proficiency for a person sending flashing light signals shall be 30 letters per minute and the standard of expertness for such person shall be 60 letters per minute. In either case, all the letters composing the test shall be sent correctly. (See art. 279.)

SEMAPHORE.

305. Semaphore is the standard system of trasnmitting dispatches during daylight for short and medium distances. While under ordinary circumstances it would not be used for the transmission of signals, it may be used either as the primary method of transmission or as a secondary method to supplement flag signals then displayed.

306. It employs two hand flags from 15 to 18 inches square, and either blue and white similar to the international flag "P" or red and yellow similar to the international flag "O," the color to be used which affords the better contrast to the background. The flags should be attached to a light staff about 2 feet long.

307. The sender should select a background giving the greatest contrast. Except under special conditions of light and when the sun is in line with and back of the sender, the sky affords the best background. The arms must be placed at the exact positions indicating the letters, a distinct pause being made at each position and the arms moved from position to position by the shortest route.

308. The semaphore alphabet is printed as the characters appear with the sender facing the receiver. Thus the character "B" is with the right arm extended horizontally.

309. Numbers shall always be spelled out.

310. The "break" and "answering" are shown in the plate.

THE SEMAPHORE ALPHABET

CHARACTERS	HAND FLAGS	CHARACTERS	HAND FLAGS	CHARACTERS	HAND FLAGS	CHARACTERS	HAND FLAGS
A		I		Q		Y	
B		J		R		Z	
C		K		S		ATTENTION	
D		L		T		ANSWERING SIGN	
E		M		U		BREAK	
F		N		V			
G		O		W			
H		P		X			

311. Procedure signs ordinarily used are:

Error	**E** agitated.
Interrogatory	INT.
Code follows	BT.
Signals follow	IM.
Number of words or groups	**GR** (followed by number spelled out).
End of word	Break.
End of sentence (full stop)	AAA (three a's).
End of dispatch	AR.
Repeat all before word	IMI break **AB** break (word).
Repeat all after word	IMI break **AA** break (word).
Repeat word after word	IMI break **WA** break (word).
Received (and communication finished)	**R** break VA (used only when call flags are not used. When call flags are used the hauling down of the call signifies "dispatch received").
Move to your right	**MR**.[1]
Move to your left	**ML**.[1]
Move up	**MU**.[1]
Move down	**MD**.[1]

312. To call a unit hoist the call of the unit for whom the signal or dispatch is intended, "two-blocked" (unless it is necessary to make such a call while flag signals are displayed at the same yardarm, in which case the call may be hoisted at the dip). The receiving unit answers the call by hoisting the call of the transmitting unit over the answering pennant (1) at the "dip," as soon as seen, and until ready to receive; (2) two-blocked when ready to receive. When it is not practicable to call by flag hoist, and the "attention" sign is not sufficiently definite to attract attention, the transmitting unit will use three or four letters abbreviating the name of the unit called. The receiving unit answers with the "answering" sign, and if that be not sufficiently definite with three or four letters abbreviating the name of the unit answered. The transmitting unit will then make "break" (II) and then **GR**, followed by number of groups or words, and then again makes break sign and proceeds with text of the dispatch, all numbers being spelled out. When

[1] May be used in wigwag also.

the call and answer is by flag hoist the receiving unit will dip the answering pennant immediately when a sign or word is missed. If the call be other than by flag hoist, the receiving unit will in such cases make "repeat" IMI. At the conclusion of the dispatch the transmitting unit makes the break sign and then makes AR, and hauls down the flag call if used. The receiving unit acknowledges the receipt of the dispatch (*a*) if the call and the answer be by flag hoist, by hauling down the answering pennant when the transmitting unit hauls down the call; (*b*) if the call and answer be other than by flag hoist, by making "R break VA." If there are additional dispatches to transmit to the same receiving unit the transmitting unit makes AR H B at the end of the dispatch, instead of AR. If the transmitting unit indicates that there are further dispatches for the same receiving unit, the receiving unit answers such signal with "R H K" or "R H Q," as circumstances demand, instead of "R H VA," which last signal the receiving unit makes only when all dispatches for her at that time have been received.

313. If during the sending of the dispatch the receiving unit fails to receive any part of it for any reason, such as the sender becoming obscured by smoke, etc., the receiving unit should dip the answering pennant, if used. The transmitting unit should then dip the call. When the receiving unit is again ready to receive, it should two-block the answering pennant and the transmitting unit should then two-block the call and proceed with the dispatch, starting with and repeating the last two or three words transmitted before the answering pennant was dipped. If the receiving unit requires more than the last word or sign to be repeated, it should make the appropriate procedure sign for repeating the required portion.

314. (1) The Standard of proficiency for a person receiving semaphore signals in a test for proficiency shall be 40 letters per minute. The standard of expertness for such person shall be 90 letters per minute. In either case, at least 85 per cent of the letters sent shall be received and recorded correctly.

(2) The standard of proficiency for a person sending semaphore signals shall be 40 letters per minute and the standard of expertness for such person shall be 90 letters per minute. In either case, all the letters composing the test shall be sent correctly. (See art. 279.)

315. The letter "G" is designated for use in opening communication by semaphore, wigwag, or flashing light between Coast Guard stations and vessels of the United States Navy. The International Code pennant "G" will be used for the purpose of opening communication by the semaphore and wigwag between Coast Guard stations

and vessels of the United States Navy. The pennant "G" hoisted at the yardarm of a naval vessel indicates that the vessel desires to communicate with the Coast Guard station in sight by semaphore or wigwag. To answer the station hoists the International Code answering pennant at the "dip" (about two-thirds of the way up). The vessel then proceeds with the message. When the message is received and understood the station hoists the answering pennant to the yardarm. Both then haul down. If not understood, request by semaphore or wigwag, as the case may be, that the message, or such part as may be necessary, be repeated. Similarly a Coast Guard station desiring to communicate with a naval vessel will hoist "G" at the yardarm, and the naval vessel will answer by hoisting the answering pennant at the "dip." The message will then be sent and acknowledged as prescribed. To open communication at night by flashing light the letter "G" will be used as a call. Stations answer by making "G," and the message will be sent as prescribed in article 302, "Instructions for Coast Guard Stations." A naval vessel may answer by making her own call or making "G." It is the practice when communicating by flashing light for the receiving station to make a long dash after each word made by the sending station, which is correctly received. If the dash is not made, the sending station repeats the word until the receiving station indicates by a long dash that the word is understood. When several naval vessels are present the senior naval vessel will acknowledge the call "G" when made by a Coast Guard station. The station should in all cases determine the name of the naval vessel with which it is communicating.

International Code.

321. One drill with the International Code shall be held each week, recitation and practice alternating. The recitation shall consist of questions by the officer in charge to each member of the crew upon the different flags of the code; upon one, two, three, and four flag hoists, and the distinguishing flag or pennant of each; the part of the code book necessary to turn to when reading or in making a signal; the manner of opening and conducting communications by the International Code; special distance signals; the "List of Merchant Vessels of the United States"; and in actual communication by means of the miniature signal flags provided each station. The "bridge" names for the flags of the International Code as shown in this book shall always be used.

322. Practice with the International Code shall be held out of doors with the regulation flags. The crew will be divided into two parts, one to send and the other to receive messages prepared by the officer in charge with the view of testing the knowledge of the crew in the various tables and parts of the code, and in reading and making the official numbers of vessels. To insure accuracy, a message shall in each case be written out before being given to the sending squad, which will be required to look up and to record on the same or an attached sheet of paper the corresponding signals. A separate line shall be used for each hoist and its meaning, a straight line drawn down the sheet separating the two. The receiving squad shall be required to make a similar record of each hoist, carefully checking the same while the hoist is still up. At the close of the exercise the officer in charge will compare the messages received with the ones sent to note errors or discrepancies and will instruct the crew regarding any that he finds. Each member of the crew should be given an opportunity to find and record, without assistance, one or more hoists and their meanings at each drill. The practice should include making up the flags of a hoist as soon as it is hauled down.

323. When two stations are within signal distance of each other, the International Code drill shall be held between them, the day to be agreed upon by the officers in charge. If atmospheric conditions, force, or direction of the wind, assistance work, etc., prevent the drill being held on the appointed day, the respective officers shall select another day for the drill.

324. When a station is not within signal distance of another, or when circumstances prevent a drill between two crews, a temporary pole on which to hoist the answering pennant (which may be an improvised one) should be erected well beyond speaking distance of the flagpole and the practice conducted as prescribed in the preceding article. The two parts of the crew shall practice at both sending and receiving messages. In the absence of a second set of international signal flags the receiving party shall use the wigwag for acknowledging hoists and making other necessary signals.

325. No drill with the International Code shall be regarded as a practice and recorded in the log as such unless it be held out of doors with the regulation flags. All other exercises with this code shall be recorded in the log as recitations.

326. The standard of proficiency in International Code practice shall be the ability to read any signal displayed in one hoist and give its meaning correctly in one minute, and to convert any given

message into its proper code signals at an average speed of two minutes for each hoist in the message.

327. The standard of expertness in International Code practice shall be the ability to read any signal displayed in one hoist and give its meaning correctly in 20 seconds, and to convert any given message into its proper code signals at an average speed of 45 seconds for each hoist in the message.

Signals for Use at Wrecks.

331. The following signals shall be used by the officers and crews at Coast Guard stations as circumstances may require:

(*a*) Upon the discovery of a wreck by night, a red pyrotechnic light or a red rocket will be burned to signify, "You are seen; assistance will be given as soon as possible."

(*b*) A red flag waved on shore by day, or a red light, red rocket, or red Roman candle displayed by night, will signify, "Haul away."

(*c*) A white flag waved on shore by day, or a white light slowly swung back and forth, or a white rocket or a white Roman candle fired by night, will signify, "Slack away."

(*d*) Two flags, a white and a red, waved at the same time on shore by day, or two lights, a white and a red, slowly swung at the same time, or a blue pyrotechnic light burned by night, will signify, "Do not attempt to land in your own boats; it is impossible."

(*e*) A man on shore beckoning by day, or two torches burning near together by night, will signify, "This is the best place to land."

332. Any of the signals specified in the preceding article may be answered from the vessel as follows:

In the daytime, by waving a flag, a handkerchief, a hat, or even the hand; at night, by firing a rocket, a blue light, or a gun, or by showing a light over the ship's rail for a short time and then concealing it.

333. The officer in charge of every station shall see that there is a staff for each of the flags carried on the beach cart for use at wrecks. Each staff shall be 6 feet long, 1 inch in diameter at the butt, and tapering to one-half inch at the top, where the flag shall be attached. The staffs shall be made of some tough wood; a crooked or condemned oar may be used for this purpose. When properly fitted they shall be becketed under the beach cart, the flags being under the body of the cart to protect them from the weather.

334. The torches shall be secured to the headboard of the beach cart by the fixtures supplied with them. The pots shall be kept

half filled with mineral oil and the boxes in the handles kept filled with matches. The torch staffs shall be becketed on the side of the cart. To extinguish the torch return it to the pot, letting the cover attached to the torch fall into its place on the pot. The extra cover, connected with a chain, is to cover the pot while the torch is burning during rain or snow.

335. When the two torches are used together, as directed in paragraph (*e*) of article 331, they shall be attached to their staffs and, if possible, stuck in the ground about 10 feet apart in line with the beach.

336. One red and one white lantern (unlighted until required for signaling) shall be carried on the cart, one on each side, attached to the uprights. If a boat is to be used and the beach cart is not used, the necessary flags and lights to make the signals directed in paragraphs (*a*) and (*e*) of article 331 shall be transferred from the cart to the boat and taken to the beach to be used, if necessary.

United States Storm Signals.

341. Storm warnings are displayed by the United States Weather Bureau as follows:

Explanation of Small-Craft, Storm, and Hurricane Warnings.

(1) *The small-craft warning.*—A red pennant indicates that moderately strong winds that will interfere with the safe operation of small craft are expected. No night display of small-craft warnings is made.

(2) *The northeast storm warning.*—A red pennant *above* a square red flag with black center displayed by day, or two red lanterns, one above the other, displayed by night, indicates the approach of a storm of marked violence, with winds beginning from the *northeast.*

(3) *The southeast storm warning.*—A red pennant *below* a square red flag with black center displayed by day, or one red lantern displayed by night, indicates the approach of a storm of marked violence, with winds beginning from the *southeast.*

(4) *The southwest storm warning.*—A white pennant *below* a square red flag with black center displayed by day, or a white lantern *below* a red lantern displayed by night, indicates the

approach of a storm of marked violence, with winds beginning from the *southwest*.

(5) *The northwest storm warning.*—A white pennant *above* a square red flag with black center displayed by day, or a white lantern *above* a red lantern displayed by night, indicates the approach of a storm of marked violence, with winds beginning from the *northwest*.

(6) *Hurricane or whole gale warning.*—Two square flags, red with black centers, one above the other, displayed by day, or two red lanterns, with a white lantern between, displayed by night, indicate the approach of a tropical hurricane or of one of the extremely severe and dangerous storms which occasionally occur.

348. Flags and pennants shown in Plates I and II are not used by Coast Guard stations. They are inserted for general information.

RESUSCITATION DRILL.

351. Resuscitation drill shall be held once each week and shall be had with the whole crew when it consists of an officer and six men or less. The officer is not required to take the part of the patient. With more than six surfmen present for the drill, the officer shall direct the drill without taking part in it. Each member of the crew shall participate in the drill and be proficient in it.

352. One of the crew shall take the part of the patient and the others shall take position astride the patient's hips, at the arms, holding the tongue, rubbing the limbs, applying hot-water bottles, etc., and the position of "idle man." The position of "idle man," on the patient's right, when he is lying on his back, is designed to provide a breathing spell for the man astride the hips before he works with the arms, as these two positions are the most tiring in the drill.

353. At the beginning of the drill the officer shall be the first man at the chest movement, except when he directs the drill, as prescribed in article 351; No. 1, the "idle man"; No. 2, at the arms; No. 3, at the tongue; No. 4, rubbing the left leg; and No. 5, rubbing the right leg. After about two minutes' practice each man shall move one place to the left, facing the patient, and continue the drill; thus the officer will move into the position of "idle man"; No. 1 will go to the arms; No. 2, to the tongue; No. 3, to the left leg; No. 4, to the right leg; No. 5 will take position astride the body. After a further practice of about two

minutes each man shall, at the order "Shift," move one place to the left, as before, the crew continuing to rotate until each man has been drilled two minutes in each of the several positions. A new patient should be selected at intervals of 9 or 10 minutes. Care must be taken in rotating that the count is not interrupted or its cadence changed. After the crew as a whole has been exercised, each man shall perform the resuscitation of a patient without assistance, according to the prone pressure method, repeating all the rules necessary and indicating by motions the several steps as he proceeds.

354. The recitation in resuscitation shall embrace the rules, including the prone pressure method, "Treatment of frostbites," and "Saving persons from drowning by swimming to their relief."

355. At the close of resuscitation drill the officer shall open the medicine chest and question each man on the uses of the remedies contained therein.

Directions for Restoring the Apparently Drowned.

361. Note.—These directions differ from those originally issued to the service, by the addition of means for securing deeper inspiration. The method originally published, known as the Howard or direct method, has been productive of excellent results in the practice of the service, and is retained here. It is, however, here arranged for practice in combination with the Sylvester method, the latter producing deeper inspiration than any other known method, while the former effects the most complete expiration. The combination therefore tends to produce the most rapid oxygenation of the blood—the real object to be gained. The combination is prepared primarily for the use of Coast Guard crews where assistants are at hand. An adaptation of the Schafer (or prone pressure) method is published as a guide in cases where no assistants are at hand and one person is compelled to act alone. In preparing these directions the able and exhaustive report of a committee of the Humane Society of Massachusetts, embraced in the annual report of the society for 1895–96, has been availed of, placing the Department under many obligations for its valuable suggestions.

Rule I. Arouse the Patient.—Do not move the patient unless in danger of freezing; instantly expose the face to the air, toward the wind if there be any; wipe dry the mouth and nostrils; rip the clothing so as to expose the chest and waist; give two or three quick smarting slaps on the chest with the open hand.

If the patient does not revive, proceed immediately as follows:

RULE II. TO EXPEL WATER FROM THE STOMACH AND CHEST (see fig. 1).—Separate the jaws and keep them apart by placing between the teeth a cork or small bit of wood; turn the patient on his face, a large bundle of tightly rolled clothing being placed beneath the stomach; press heavily on the back over it for half a minute, or as long as fluids flow freely from the mouth.

RULE III. TO PRODUCE BREATHING (see figs. 2 and 3).—Clear the mouth and throat of mucous by introducing into the throat the

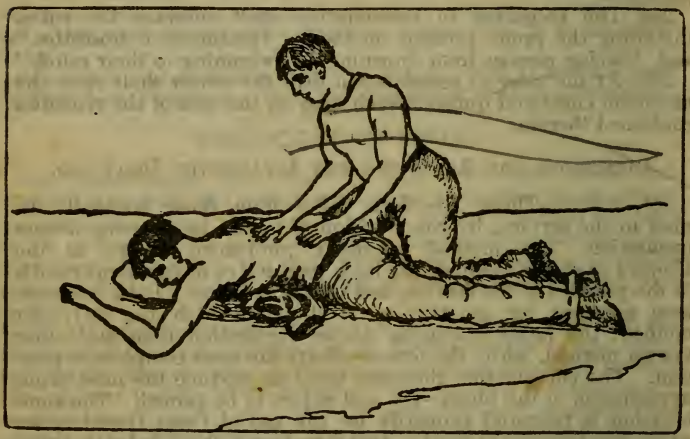


FIG. 1.—Expelling water from body.

corner of a handkerchief wrapped closely around the forefinger; turn the patient on the back, the roll of clothing being so placed as to raise the pit of the stomach above the level of the rest of the body. Let an assistant with a handkerchief or piece of dry cloth draw the tip of the tongue out of one corner of the mouth (which prevents the tongue from falling back and choking the entrance to the windpipe), and keep it projecting a little beyond the lips. Let another assistant grasp the arms just below the elbows and draw them steadily upward by the sides of the patient's head to the ground, the hands nearly meeting (which enlarges the capacity of the chest and induces

inspiration). (Fig. 2.) While this is being done let a third assistant take position astride the patient's hips with his elbows resting upon his own knees, his hands extended ready for action. Next, let the assistant standing at the head turn down the patient's arms to the sides of the body, the assistant holding the tongue, changing hands if necessary[2] to let the arms pass. Just before the patient's hands reach the ground, the man astride the body will grasp the body with his hands, the balls of the thumbs resting on either side of the pit of the stomach, the fingers falling into the grooves between the short

FIG. 2.—Movements to produce inspiration.

ribs. Now, using his knees as a pivot, he will at the moment the patient's hands touch the ground throw (not too suddenly) all his weight forward on his hands, and at the same time squeeze the waist between them as if he wished to force anything in the chest upward out of the mouth; he will deepen the pressure while he slowly counts 1, 2, 3, 4 (a period of 2 to 2½ seconds), then suddenly let go

[2] Changing hands will be found unnecessary after some practice: the tongue, however, must not be released.

with a final push, which will spring him back to his first position[1]. This completes *expiration*. (Fig. 3.)

At the instant of his letting go, the man at the patient's head will again draw the arms steadily upward to the sides of the patient's head as before (the assistant holding the tongue again changing hands to let the arms pass if necessary), holding them there while he slowly counts 1, 2, 3, 4 (a period of 2 to 2½ seconds). This completes inspiration.

FIG. 3.—Movements to produce expiration.

Repeat these movements deliberately and perseveringly twelve to fifteen times in every minute—thus imitating the natural motions of breathing.

If natural breathing be not restored after a trial of the bellows movement for the space of about four minutes, then turn the patient a second time on the stomach, as directed in Rule II, rolling the body in the opposite direction from that in which it was first turned for the purpose of freeing the air passage from any remaining water. Continue the artificial respiration from one to four hours, or until the

[1] A child or very delicate patient must, of course, be more gently handled.

patient breathes, and for a while after the appearance of returning life carefully aid the first short gasps until deepened into full breaths.[4] Continue the drying and rubbing, which should have been unceasingly practiced from the beginning by assistants, taking care not to interfere with the means employed to produce breathing. Thus the limbs of the patient should be rubbed, always in an upward direction toward the body, with firm-grasping pressure and energy, using the bare hands, dry flannels or handkerchiefs, and continuing the friction under the blankets or over the dry clothing. The warmth of the body can also be promoted by the application of hot flannels to the stomach and armpits, bottles or bladders of hot water, heated bricks, etc., to the limbs and soles of the feet.

RULE IV. AFTER TREATMENT.—*Externally:* As soon as breathing is established let the patient be stripped of all wet clothing, wrapped in blankets only, put to bed comfortably warm, but with a free circulation of fresh air, and left to perfect rest. *Internally:* Give aromatic spirits of ammonia in doses of a teaspoonful to a tablespoonful, according to the weight of the patient, or hot tea or coffee, every 10 or 15 minutes for the first hour, and as often thereafter as may seem expedient. *Later manifestations:* After reaction is fully established there is great danger of congestion of the lungs, and if perfect rest is not maintained for at least 48 hours it sometimes occurs that the patient is seized with great difficulty of breathing, and death is liable to follow unless immediate relief is afforded. In such cases apply a large mustard plaster over the breast. If the patient gasps for breath before the mustard takes effect, assist the breathing by carefully repeating the artificial respiration.

ADAPTATION OF THE SCHAFER (OR PRONE PRESSURE) METHOD.

TO PRODUCE RESPIRATION.—If no assistance be at hand and one person must work alone, turn the patient on his abdomen, face downward, with the arms extended beyond the head in line with the body; examine and clear the mouth and throat of mucus and see that the air passages are not obstructed by foreign matter. Place the patient's head and arms in position, the left side of the head resting on the ground and the tongue protruding, with the arms from the shoulder to the elbow extended sideways. Place the feet together. (See fig. 4.) When this has been done, the operator will

[4] By continuing the artificial respiration, carefully timing the movements to conform with the patient's labored breathing.

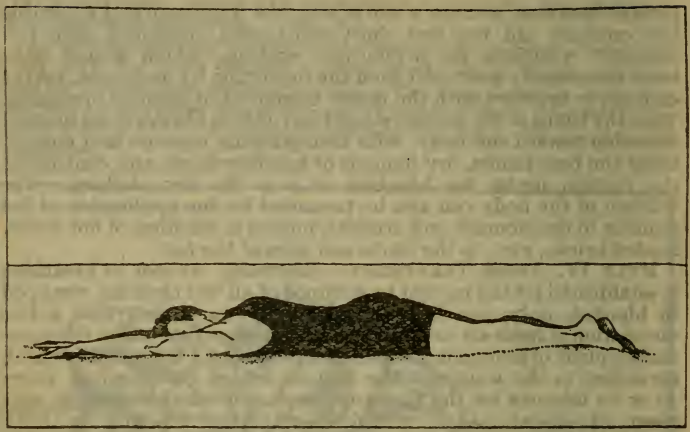


FIG. 4.—Showing patient turned on abdomen, arms and legs straight.

FIG. 5.—First position of operator and patient in effecting artificial respiration by the "prone pressure method."

kneel, or squat, by the side or astride of the patient and place his hands slightly above the small of the patient's back, one hand on each side of the backbone, with his thumbs about 1 inch apart and parallel with the backbone, the fingers well spread and extending toward the sides of the body, the little fingers being slightly above the floating ribs. (See fig. 5.) Then he will lean forward steadily, allowing his weight to fall evenly on both hands, arms straight, and without effort compress the body downward and slightly forward,

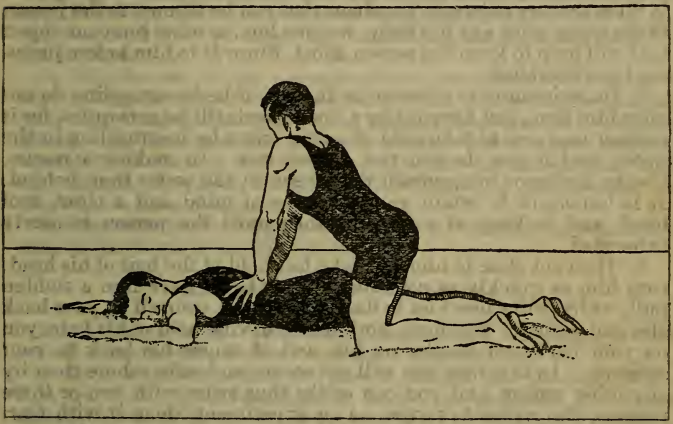


FIG. 6.—Second position of operator, who is throwing his weight vertically on his wrists, thus putting pressure on the thorax and abdomen of the patient. The pressure is exerted slowly for about three seconds and then removed for a period of about two seconds and again applied.

for a period of about three seconds, taking care that the hands do not slip backward and that the arms do not go beyond the perpendicular. At the end of this period he will, still keeping the arms straight and without lifting the hands from the patient, release the pressure and swing back smartly, well on his heels. The complete movement should occupy from four to five seconds and should be repeated from twelve to fifteen times a minute. The operator should work smartly, but not roughly, and watch the patient closely for any signs of consciousness or returning breathing. (See fig. 6.)

Instructions for Saving Drowning Persons by Swimming to Their Relief.

1. When you approach a person drowning in the water assure him with a loud and firm voice that he is safe.

2. Before jumping in to save him, divest yourself as far and as quickly as possible of all clothes; tear them off if necessary; but if there is not time, loose at all events the foot of your drawers, if they are tied, as, if you do not do so, they fill with water and drag you. If there are any objects lying about that can be thrown to the person in the water, such as a life buoy, wooden box, or other buoyant object that will help to keep the person afloat, throw it to him before jumping in to his relief.

3. On swimming to a person in the sea, if he be struggling do not seize him then, but keep off for a few seconds till he gets quiet, for it is sheer madness to take hold of a man when he is struggling in the water, and if you do you run a great risk. In making a rescue, always endeavor to approach the person in the water from behind. It is important to retain your presence of mind and a clear, cool head, and to keep at a safe distance until the person is nearly exhausted.

4. Then get close to him and take fast hold of the hair of his head, turn him as quickly as possible onto his back, gave him a sudden pull, which will cause him to float, then throw yourself on your back also and swim for the shore, both hands having hold of his hair, you on your back and he also on his, and of course his back to your stomach. In this way you will get sooner and safer ashore than by any other means, and you can easily thus swim with two or three persons; the writer has even, as an experiment, done it with four, and gone with them 40 or 50 yards in the sea. One great advantage of this method is that it enables you to keep your head up and also to hold the person's head up you are trying to save. It is of primary importance that you take fast hold of the hair and throw both the person and yourself on your backs. After many experiments, it is usually found preferable to all other methods. You can in this manner float nearly as long as you please, or until a boat or other help can be obtained.

5. It is believed there is no such thing as a *death grasp*; at least it is very unusual to witness it. As soon as a drowning man begins to get feeble and to lose his recollection, he gradually slackens his hold until he quits it altogether. No apprehension need, therefore, be felt on that head when attempting to rescue a drowning person.

6. After a person has sunk to the bottom, if the water be smooth, the exact position where the body lies may be known by the air bubbles, which will occasionally rise to the surface, allowance being of course made for the motion of the water, if in a tideway or stream, which will have carried the bubbles out of a perpendicular course in rising to the surface. Oftentimes a body may be regained from the bottom, before too late for recovery, by diving for it in the direction indicated by these bubbles.

7. On rescuing a person by diving to the bottom, the hair of the head should be seized by one hand only, and the other used in conjunction with the feet in raising yourself and the drowning person to the surface.

8. If in the sea, it may sometimes be a great error to try to get to land. If there be a strong "outsetting" tide, and you are swimming either by yourself or having hold of a person who can not swim, then get on your back and float till help comes. Many a man exhausts himself by stemming the billows for the shore on a back-going tide, and sinks in the effort, when, if he had floated, a boat or other aid might have been obtained.

9. These instructions apply alike to all circumstances, whether as regards rough sea or smooth water.

Effects of Cold—Frostbite.

365. (1) *Symptoms.*—The local effects of cold, according to their severity, usually are divided into three degrees.

a. In the FIRST DEGREE the part is painful and the skin is of a dark-red hue. This condition is known as chilblain and occurs chiefly when children or poorly nourished persons are exposed to cold.

b. In the SECOND DEGREE the skin is of a bright red or livid hue, and blisters form on its surface.

c. In the THIRD DEGREE the part is pale, stiff, and brittle. Severe cold causes constriction of the blood vessels, and if the blood is completely cut off for a considerable time death of the tissue results.

(2) a. If heat is applied to a part that has been slightly frostbitten (FIRST DEGREE), a sensation of itching and tingling is experienced.

b. In frostbites of the SECOND DEGREE heat causes pain and swelling; the skin may peel off and leave a raw surface.

c. In the THIRD DEGREE, if the part is dead, no reaction takes place upon the application of heat; the dead portion turns black,

and a line of demarcation appears between it and the living tissue. If the heat is applied suddenly to a badly frozen part of the body, the liability to gangrene (death of the tissue) is increased on account of the intense reaction that takes place in the tissue that is still living.

(3) When the whole body is exposed to severe cold, the individual becomes benumbed, exertion is difficult, and drowsiness which can not be resisted overtakes him; the eyesight fails, he totters as he walks, and then falls and becomes unconscious.

(4) *Prevention.*—All parts of the body should be kept as dry as possible, as dampness increases the tendency to frostbite. The shoes should be large. In extreme weather, in case of exposure, it is well to wear two pairs of stockings, a woolen pair over a cotton pair. The ears and the face, except the eyes, nose, and mouth, should be well covered, especially if snow is falling or a brisk wind is blowing. Fur-lined gloves are warmer than woolen ones. Special care should be taken of the feet; they should be washed each day, and a small quantity of oil should be rubbed into them. A large quantity of oil is harmful, and only such quantity should be used as can be well rubbed in, leaving a dry surface when the rubbing is completed. Clean stockings should be put on each day. Wet stockings should be changed for dry ones whenever practicable. The feet are less likely to become frostbitten if a person keeps moving. If he has to stand in one place, shoe strings should be loosened.

(5) *Treatment.*—If a physician is present, his instructions should be followed. If no physician is present, proceed as follows:

a. If the frostbite is of the FIRST DEGREE—that is, if the tissue is only slightly frostbitten—the part should be rubbed gently and cloths wrung out of cold water applied. Snow may be rubbed on the affected part, but it is not as efficient as cold cloths. The rubbing and the applications should alternate, rubbing a few minutes and then applying cloths for a few minutes. The temperature of the water in which the cloths are soaked should be raised gradually until it is lukewarm.

b. In frostbites of the SECOND DEGREE—that is, where the skin is of a livid hue and blisters have formed—rubbing should not be resorted to, as there is danger of increasing the ill effects. Cold cloths should be applied, but the cold treatment must not be kept up too long, as cold prolongs the cause of the injury. The temperature of the water should be raised gradually a degree or two every few minutes, using fresh cloths each time the temperature of the water is changed. It should be remembered that reaction

takes place naturally as soon as the person is taken indoors out of the cold, even if he be treated in a cold room, and the object of treatment is to prevent this reaction from taking place too rapidly and at the same time not to retard unduly the restoration of vitality.

c. In frostbites of the THIRD DEGREE, the same method should be followed in order to bring about a reaction as in those of the SECOND DEGREE; reaction, however, will not happen in a part that is dead, but the adjacent living tissue will react, and a red line will form between it and the dead portion.

d. In some cases reaction has already taken place when the person is first seen. In these cases the above-described treatment is unnecessary. After reaction has occurred the patient should be moved into a warm room and an ointment composed of vaseline 1 ounce, camphor 6 grains, should be applied. The part should then be surrounded with absorbent cotton, or wrapped in flannel cloths. Boracic-acid ointment may be used instead of the vaseline and camphor. Blisters that form should be pricked with a needle and the water allowed to flow out, but the covering of the blisters should not be removed.

e. If gangrene occurs, cloths wet with alcohol placed over the part will prevent infection and hasten the separation of the dead part from the living tissue.

f. A person suffering from exposure to a low temperature, or from submersion in cold water, should be placed in a cold room and artificial respiration, as practiced by the Coast Guard in the case of apparently drowned persons, should be performed. The extremities should be rubbed with a solution composed of equal parts of alcohol and water.

g. When the patient begins to react, the temperature of the room should be raised slowly and the patient given hot drinks, such as coffee, tea, or chocolate. If the patient is unable to swallow, a pint of hot coffee or tea should be injected into the rectum. Efforts to restore animation should be continued for an hour or two.

BEACH-APPARATUS DRILL.

371. Beach-apparatus drill shall be so far as practicable precisely the same as at a wreck, using the apparatus on the beach cart. The drill shall consist in the mustering of the crew, the recital by each member of his particular duties, the rigging of the gear over a distance of approximately 75 yards from the sand anchor to the wreck pole, and the carrying out of the drill as prescribed. If

practicable, the range from the gun to the wreck pole should be across water. Powder must be used in every case unless the supply on hand is reduced to 3 pounds, in which case the district superintendent shall be notified. The use of small practice gear is forbidden. A short whip and hawser of regulation size will be allowed, but in every other respect the gear shall be of service size and kind. When a practice shot line is used, it shall be removed from the pins and fired from the box precisely as in actual service. Once each quarter the regulation gear on the service beach cart shall be used. The sand anchor shall be securely buried at every drill and a man landed in the buoy. A post or ready-buried anchor shall not be used except where absolutely unavoidable.

372. Beach-apparatus drill shall be held twice each week during the first month after a station is placed in commission, and once each week thereafter.

373. Practice with the life car shall be substituted for that with the breeches buoy at least twice each year. The car must be examined for leaks after each practice.

374. The hawser cutter shall be bent on ready for hauling off once each month, but the hawser shall not be cut. The officer in charge shall, when advisable, demonstrate the use of the hawser cutter by bending it on to a condemned line or hawser and cutting it.

375. The No. 1 and No. 2 surfmen shall on alternate months conduct the drill once, taking the place of the officer in charge, the officer in charge falling out. When No. 1 conducts the drill, he performs his own duties and those of the officer in charge, assisted by No. 2; No. 2 performs his regular duties and assists No. 1. When No. 2 conducts the drill, he performs the duties of the officer in charge and of No. 1, assisted by No. 1; No. 1 performs the regular duties of No. 2 and assists No. 2. At such drills each of the other men will perform his regular duties.

376. At each drill the person in charge shall note the time elapsing from the moment the command *Action* is given until the man is landed at the crotch. This time, and the distance of the sand anchor from the pole, shall be noted in the log.

Words of command:

Open boat-room doors—Man the beach cart.
Forward.
Halt.
Action.
Man lee whip, haul off.
Man weather whip, haul ashore.

377. (1) *Open boat-room doors—Man the beach cart.*—Nos. 5 and 6 open and secure the boat-room doors. If necessary to run the boat out, Nos. 1 and 2 ship the pole or shafts of the boat wagon; No. 1 holding the pole, No. 2 inserting the bolt. The crew run out the boat, No. 1 and No. 2 guiding the pole. The men then take their stations at the beach cart, face to the front with the drag ropes over their shoulders, as shown in fig. 1.

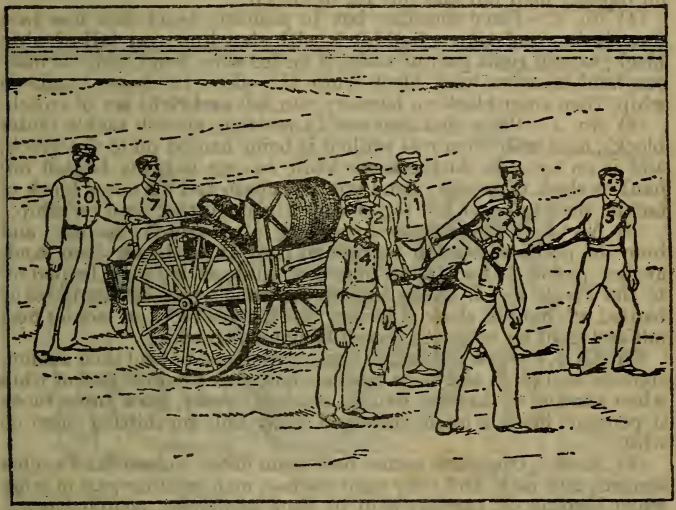


FIG. 1.—Man the beach cart.

(2) The officer in charge before giving the command, *Forward!* will muster the crew, and each man upon his number being called will make the hand salute and recite his duties as given below.

Officer in charge.—Has general supervision; selects place to bury sand anchor and position for gun; places firing plank, if one is used;[5] places gun in position; provides cartridge, primer, and lanyard; loads and sights gun and determines elevation with the level; pricks cartridge, primes, and fires gun; signals the wreck to haul off whip;

lights hawser to the surf; hitches whip around neck of buoy block and bends buoy bridle to whip; raises center of crotch.

(3) *No. 1.*—Assist officer in charge to place gun in position; provide shot and hold for No. 2 to bend shot line to, then insert shot in bore; train gun;[5] bend shot line around whip; attend left part of whip; if on lee side, bend whip to hawser; hold breeches buoy block while officer in charge bends on whip, and then snap block on hawser; man fall and left leg of crotch.

(4) *No. 2.*—Place shot-line box in position; bend shot line into shot; train gun;[5] take a half-hitch with shot line over tail of whip block; attend right part of whip; if on lee side, bend whip to hawser, hold breeches-buoy block while the officer in charge bends on whip, then snap block on hawser; man fall and right leg of crotch.

(5) *No. 3.*—Place shot-line box in position; stretch tackle (outer block); haul whip from reel while it is being hauled off to the wreck; and if on lee side do the same while hawser is being hauled off; haul in slack of hawser; bend strap or chain tail for outer block of tackle; man fall and left leg of crotch; am shifting man on whip.

(6) *No. 4.*—Unload buoy from cart; place crotch, hawser, and buoy in position; stretch tackle and hook inner block into sand-anchor pennant; haul whip from reel while it is being hauled off to the wreck, and if on lee side do the same while hawser is being hauled off; haul in slack of hawser; hook outer block of tackle; man fall and right leg of crotch; am shifting man on whip.

(7) *No. 5.*—Open and secure boat-room doors; unload sand anchor, shovels, and pick, and bury sand anchor; man weather part of whip when hauling off hawser; haul in slack of hawser, hook inner block if pennant block is used; man and belay fall; am shifting man on whip.

(8) *No. 6.*—Open and secure boat-room doors; unload sand anchor shovels, and pick, and bury sand anchor; man weather part of whip when hauling off hawser; haul in slack of hawser; snatch hawser, and make cat's-paw if pennant block is used; man fall and center of crotch; am shifting man on whip.

(9) *No. 7.*—In drill go to wreck pole; in service unload shovels and pick, and assist to bury sand anchor; man weather part of whip when hauling off hawser; haul in slack of hawser; man fall and center of crotch; am shifting man on whip.

(10) If the crew consists of an officer and eight men, No. 8, at drill, will go to the wreck pole instead of No. 7; in service his duties will be the same as those of No. 7.

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[5] If firing plank is used, the officer in charge will train gun.

378. **Forward.**—The beach cart will be hauled from the station to the wreck. When going down the skids or any steep declivity Nos. 1 and 2 will guide the cart, while Nos. 3, 4, 5, and 6 hold back on the drag ropes. (See fig. 2.)

379. **Halt.**—The officer in charge will direct the cart to be placed between the surf and the spot he selects for the sand anchor and a few yards to windward (current), the cart facing the surf. (See fig. 3.)

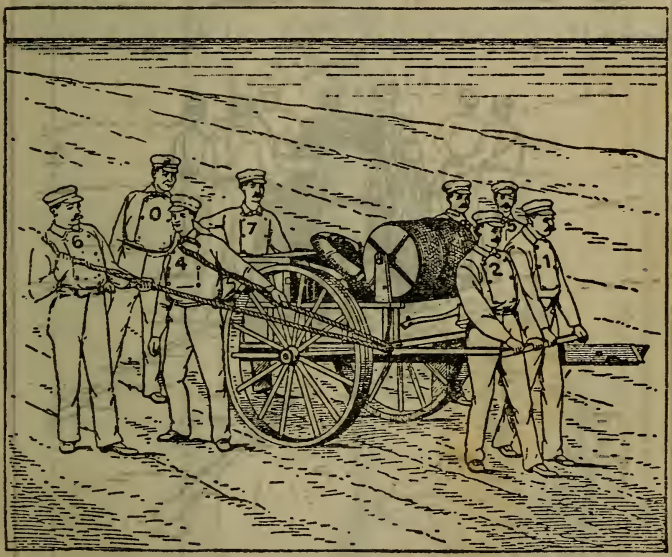

FIG. 2.—Holding back.

380. (1) **Action.**—The relative positions assumed by the men for the purpose of placing the apparatus are shown by fig. 4. The current is supposed to be running from the right, as shown by the arrow.

(2) Officer in charge puts on his haversack; No. 4 throws buoy off the cart; Nos. 5, 6, and 7 unload the shovels, pick, and sand anchor, and proceed at once to bury the sand anchor where directed

by the officer in charge. The sand anchor must be opened, its sides at right angles to each other, and buried upon its flat in a narrow trench of sufficient depth, say 2 feet, and the trench then filled in solidly about it. Nos. 2 and 3 remove the shot-line box. The officer

FIG. 3.—Halt.

in charge and No. 1 remove the gun, and place it in position four or five paces to windward of the cart; Nos. 2 and 3 place the shot-line box, inverted, on a line with the muzzle of the gun, and 3 feet to windward (wind), unless the wind is directly on shore, when they

FIG. 4.—Relative positions of men while placing apparatus.

will place it to the right, and, after lifting the pins clear of the line, will cant the box in the direction of the wreck.

(3) If through carelessness the shot line has been faked too tightly upon the pins, it should not be forced off the pins by the bottom board, which is liable to split, but the frame should be raised and a few of the bottom fakes removed with the hand when the remainder will fall off into its place in the box.

(4) Officer in charge loads with cartridges, No. 1 provides the shot, wipes and holds it while No. 2 wets a fathom of the shot line and bends it into the shank with three half hitches. No. 1 then in-

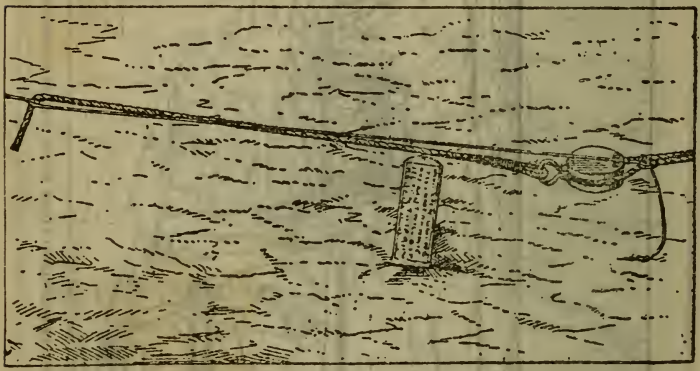

FIG. 5.—Manner in which shot line is bent to whip and tail.

serts the shot into the bore from side of gun, forcing it gently but firmly down upon the charge without disturbing the fakes *and without any slack line between the gun and the shot-line box.*

(5) Nos. 1 and 2 take position on their knees on the left and right side of the gun, respectively, and train the muzzle to the right or left by the rear handles, as directed by the officer in charge, who pricks the cartridge, leaving the priming wire in the vent, steps 2 or 3 yards to the rear, sights over the gun, and commands "Right," "Left," or "Well," as required, giving his orders in a sharp, distinct tone.

(6) The lateral training obtained, due allowance being made for the wind, the officer in charge gives the gun the necessary elevation

with the combination level, withdraws the priming wire, inserts the primer, bending the loop at a right angle to the tube, hooks the lanyard into the loop, stands off on the weather side, gives the cautionary word "Ready," and fires.

(7) When firing the gun, the officer in charge reeves the lanyard through the rear handle of the carriage and gives a sharp, strong pull in a direction below the level of the vent, to avoid disturbing the elevation.

(8) In the meanwhile No. 4 unloads and carries the crotch to a point on a line between the sand anchor and wreck, at a suitable distance from the water, on the bluff of the bank, if possible, and opens it wide, span on the left, the legs forming a straight line parallel with the beach, and then carries the breeches buoy and end of hawser to a point in front of the crotch, and as near the water as possible. If the wooden buoy block is used, he reeves the end of the hawser through it and attaches the tally board.

(9) Nos. 3 and 4 stretch the tackle from the sand anchor toward the crotch (3 at outer block, 4 at inner or white block), remove the straps, leaving it clear and ready to be placed upon the hawser.

(10) If a threefold tackle is used, No. 4 hooks the inner (white) block into the sand-anchor pennant.

(11) Communication being made with the wreck, No. 1 takes a round turn and two half hitches with the shot line around both parts of the whip immediately behind the block, while 2 makes a half hitch over the end of the tail of whip block with the bight of the shot line. (See fig. 5.)

Fig. 6 shows the position of the men and apparatus at this stage.

(12) The officer in charge makes a signal to the wreck to haul on board; No. 1 tends to the left and No. 2 the right part of the whip, separating them a distance of 50 or more yards; Nos. 3 and 4 haul the whip from the reel as fast as it is needed, No. 3 standing on the left, No. 4 on the right. (See fig. 7.)

(13) When the tail block has been made fast on board the wreck, the lee man (No. 1 or No. 2) bends the bight of the lee part of the whip to the hawser just inside the tally board, with a round turn around the hawser and a half hitch around the standing part of the whip, the end of the hawser hanging loose. Fig. 8 shows the method of bending the lee part of the whip to the hawser.

(14) The men man the weather part of the whip, excepting the lee man (No. 1 or No. 2), who tends the lee part of the whip, keeping it clear of the hawser, which will drift to leeward of it, and the lee man (No. 3 or No. 4), who hauls the whip from the reel. The officer

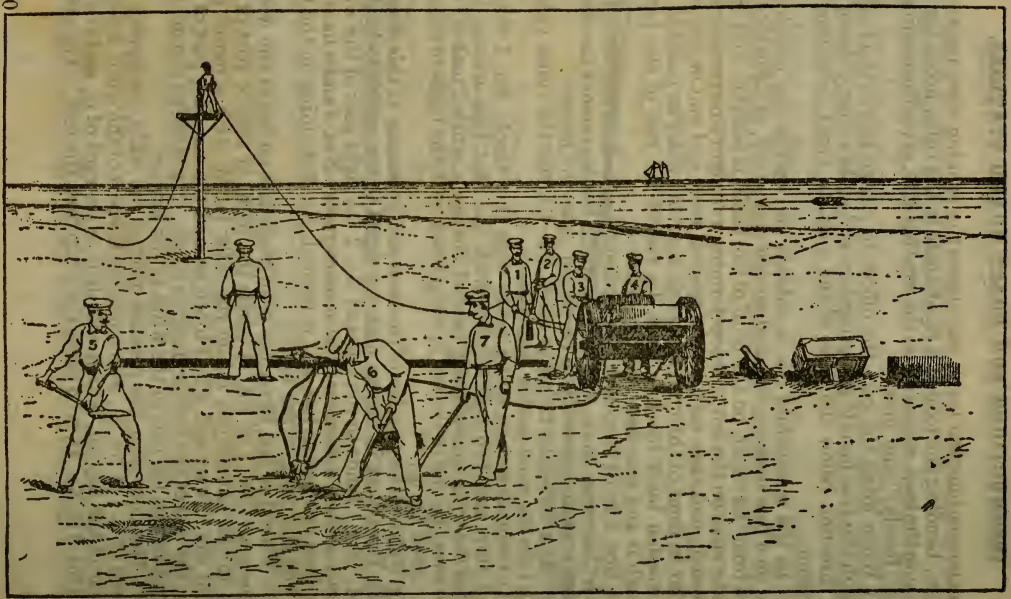

FIG. 6.—Positions when shot line is bent to whip.

FIG. 7.—Hauling off whip.

in charge hauls the hawser from the cart and lights it to the surf. (See fig. 9.)

(15) The hawser having reached the wreck, the lee man (No. 1 or No. 2) holds the breeches-buoy block while the officer in charge throws over it a clove hitch with the bight of the weather part of the whip, and hauls it snug around the neck. The block is then snapped on the hawser by the holder, and the officer in charge bends the buoy bridle into the whip, *inshore* of the buoy, with a bowline knot.

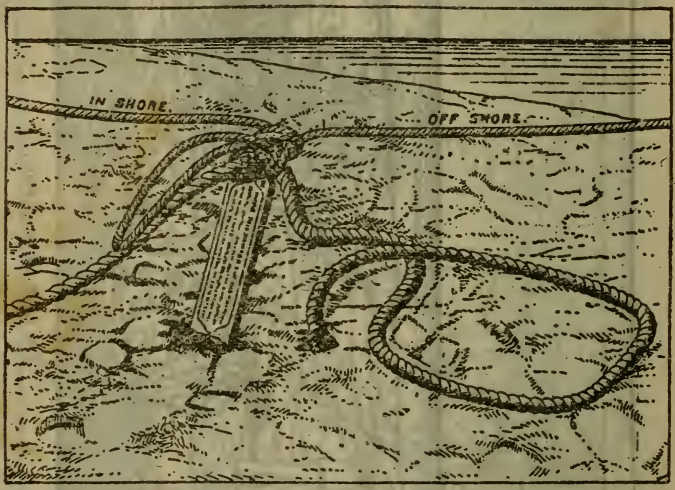

FIG. 8.—Manner in which bight of whip is bent to hawser.

(16) If the wooden buoy block is used, the buoy is passed down through the loops of the clove hitch and the hitch hauled very snug around the neck of the block. (See fig. 10.)

(17) When a threefold purchase is used the pennant block is dispensed with, and as soon as the hawser is made fast to the wreck the men who have been manning the weather part of the whip haul in the slack of the hawser, No. 5 holding the turn around the sand-anchor pennant or pennant cleat, No. 3 adjusting the strap or chain tail around the hawser, and No. 4 hooking the outer block of the

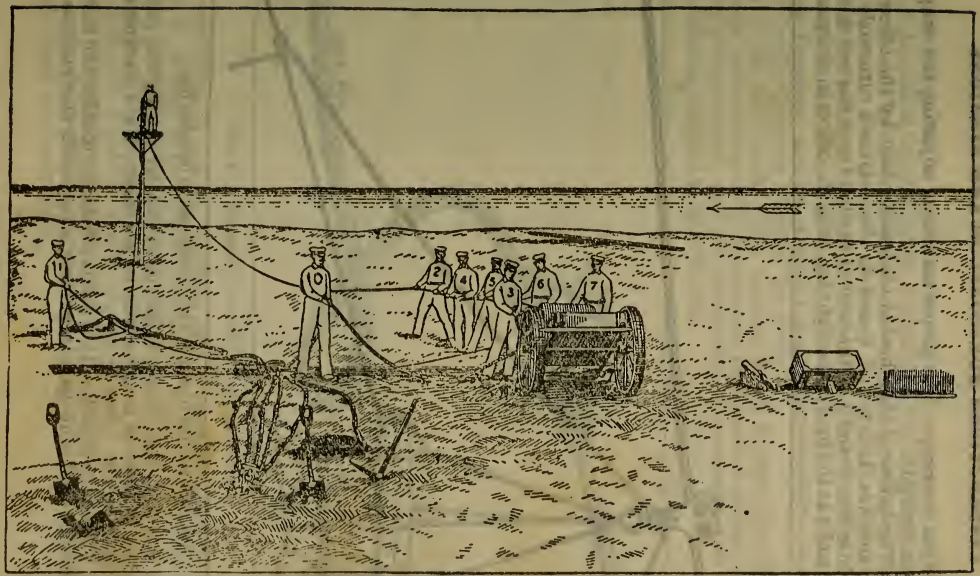

Fig. 9.—Hauling off hawser.

tackle into the strap. The proper manner of adjusting the strap is shown in figure 11.

(18) The hawser is then hauled moderately taut by the officer in charge and Nos. 1, 2, 3, 4, 5, 6, and 7. No. 5 takes a turn with the fall, while Nos. 3 and 1 at the heel of the left leg of the crotch and Nos. 2 and 4 at the heel of the right leg, with the officer in charge and

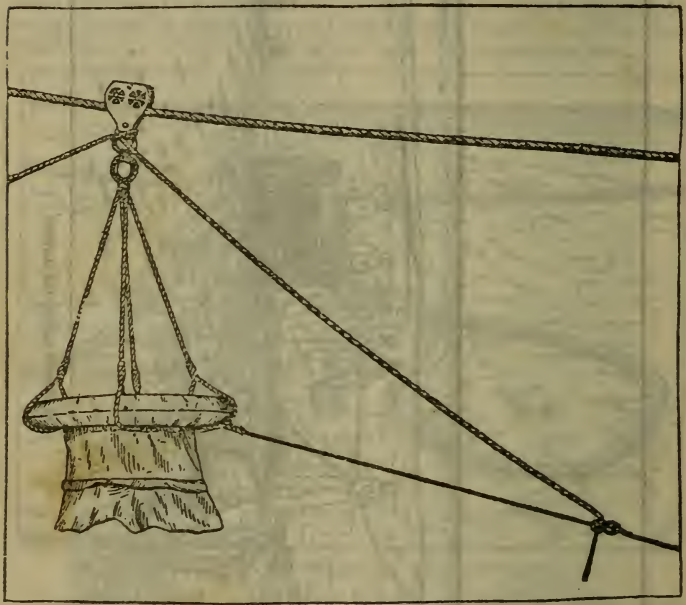

FIG. 10.—Manner in which whip is attached to breeches buoy.

Nos. 6 and 7 in the center, raise the crotch by raising the center bringing the heels as near together as necessary, No. 3 passing and securing the span. (See fig. 12.)

(19) The crotch is inclined outward sufficiently to allow the hawser to be hauled well taut upon its gaining a perpendicular position.

(20) The tackle is again manned and the hawser hauled taut when the fall is belayed by No. 5 around the neck of the inner block or pennant cleat (being careful not to choke the luff) and the whip is manned. If it becomes necessary to fleet the threefold tackle when the pennant block is not used, No. 5 takes a turn with the hawser around the sand-anchor pennant or pennant cleat, No. 3 fleets the strap, and No. 4, with the necessary assistance, overhauls and hooks the outer block of the tackle.

(21) To fleet tackle when pennant block is used, the officer in charge with a strap and heaver, racks both parts of hawser together near pennant block, and the tackle is then overhauled and hooked by the men assigned to those duties.

FIG. 11.—Manner of adjusting strap to hawser.

(22) When a twofold purchase and a pennant block are used, No. 6, as soon as the hawser is attached to the wreck snatches the bight into the pennant block and locks it, and the men on the weather part of the whip haul in the slack of the hawser, when Nos. 3, 4, 5, and 6 put the tackle on Nos. 3 and 4 at the outer block, No. 3 with the strap, Nos. 5 and 6 at the inner block, No. 6 making a cat's-paw in the hauling part of the hawser, into which Nos. 5 and 6 hook the inner block.

381. **Man lee whip—Haul off.**—Nos. 1 and 2 have charge of the left and the right side of the whip, respectively. Nos. 3, 4, 5, 6, and 7 are shifting men, man the lee part, and haul the buoy off to the wreck. (See fig. 13.)

382. (1) **Man weather whip—Haul ashore.**—Nos. 3, 4, 5, 6, and 7 shift to the weather part of the whip and haul ashore, the officer in charge superintending and assisting when necessary. (See fig. 14.)

(2) The officer in charge and No. 7 assist the rescued persons out of the buoy when they reach the shore.

383. Odd numbers are on the left, even numbers are on the right when stationed at the beach cart; and throughout the exercise, when two numbers work in company, as in training the gun, tending the whip, hauling the whip from the reel, etc., the odd number is on the left, the even number on the right.

384. The exercise must be considered as a whole, and when a man has performed one duty he will proceed to execute the next assigned him. All must work together. While the officer in charge and Nos. 1 and 2 are opening communication with the gun and shot line, Nos. 3, 4, 5, and 6 will have the hawser and its connections ready for sending off and hauling taut.

385. When practicing, No. 6 or No. 7 will go to the wreck pole as soon as the gun is discharged, and haul off and make fast the whip and hawser.

386 When the individuals of the crew have become expert in the performance of their several special duties, they are, in drill, to be successively transferred, temporarily, to the performance of the duties of each of the other members, until every man becomes proficient in the particular duties of every position. This change is effected by making each man, except the officer in charge, shift his station at the beach cart one place, proceeding in the same direction as the hands of a watch move. Thus, in the first change, No. 7 acts as No. 1, No. 1 as No. 3, No. 3 as No. 5, No. 5 as No. 6, No. 6 as No. 4, No. 4 as No. 2, and No. 2 as No. 7. (See fig. 1.)

387. In many instances, after communication is made with a wreck, as many as two or three hundred yards of shot line will be left in the box. The officer in charge must be governed by circumstances as to the best method of handling the surplus line. If there is no danger of the wreck going to pieces, the spare line may be hauled on board the wreck, the shore end being bent around the whip; but where great haste is necessary it must be cut.

FIG. 12.—Raising the crotch.

FIG. 13.—Man lee whip—haul off.

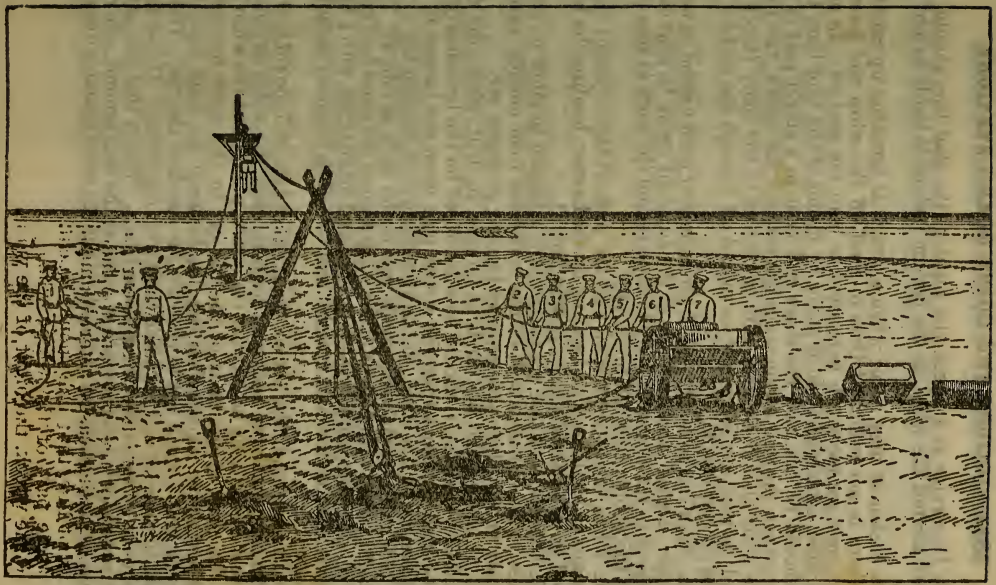

FIG. 14.—Man weather whip—haul ashore.

388. In service at a wreck the bight of the shot line should not be bent around the whip, as the portion inshore is liable to foul the whip.

389. Instances may occur when a wreck is breaking up rapidly, and there is not sufficient time to send off the whip and hawser, or the crew are too much exhausted to haul the gear off. In such cases, after communication is made by means of the shot line, that line should be cut, and the shore end bent to a single part of the whip; when the end of the whip has reached the wreck, the bight of the whip should be bent into the slings of the buoy (block removed) so that the buoy may be pulled off through the surf by the people on the wreck.

390. Work can be facilitated if, after the gear is set up and in working order, a good man from one of the adjacent crews be sent off to the wreck in the breeches buoy to superintend the work at that end, assist the people into the buoy, etc.

391. When more crews than one are present the adjacent crews will assist in hauling off and setting up the hawser, hauling the buoy off and on, and assisting the people from it.

392. Officers in charge are particularly directed to allow no interference in the management of the apparatus from outside parties, but may accept their assistance in hauling on ropes, etc.

393. (1) When the life car is to be used in drill, where the drill ground is over water, it should be substituted for the breeches buoy, and be hauled to and from the wreck pole upon the hawser in the same manner as the buoy, the hawser being rove through the eye of each bail and the whip line made fast to the bails as follows: Take two half hitches with a bight of the whip around the outer bail under the eye, carry the whip to the inner bail and make it fast with a bight as before, having the bail upright, and the whip between them taut for a span.

(2) In addition to the above, the practice at a drill should include the hauling of the car back and forth through the water as follows: The shot line having fallen over the wreck pole, bend the whip line into the rings at the ends of the life car in the same manner as described above, except that the line between the rings should be left sufficiently slack not to obstruct the hatch of the car. The car should then be hauled back and forth over the water. This maneuver should be repeated two or three times. Where this can not be done on account of the absence of water at the drill ground, two men will go out in the surfboat and anchor it at the usual practice distance

from the shore. The line will then be fired across the boat, and the drill will be carried out as last above directed.

To Load the Beach Cart.

401. The crews are not to be exercised in loading the carts expeditiously, but rather in compactly stowing the apparatus, following the instructions herein contained.

402. The apparatus must be placed upon the cart in the following order:

(*a*) The reel is to be unshipped. One man lights along the hawser while four men, one at each corner of the cart, proceed to coil it down, right-handed and from the outside toward the center, in a Flemish coil. Having completed the first layer, carry the bight to the outside of the coil and coil toward the center again. This is done in order that the hawser, when in use, may run from the center of the coil.

(*b*) Tally board No. 2 is to be spliced or bent on the top end of the hawser and stowed away in the center of the coil. This tally board bears the following directions in English on one side and in French on the other:

"Make this hawser fast about 2 feet above the tail block; see all clear and that the rope in the block runs free, and show signal to the shore."

(*c*) Ship the reel. Reeve the whip through the tail block, make each end of the whip fast with a slight stop at each side of the reel, and reel up, working toward the middle of the spindle; when both parts meet, work back to the end, and so on until the whip is on the reel, when the tail block will hang in the middle of the whip over the front of the reel.

(*d*) Tally board No. 1 is to be spliced permanently into the tail of the whip block just above the splice. This tally board contains the following directions in English on one side and in French on the other:

"Make the tail of the block fast to the lower mast, well up. If the masts are gone, then to the best place you can find. *Cast off shot line, see that the rope in the block runs free,* and show signal to the shore."

(*e*) The inner block, or that next the sand anchor, should be painted white, the outer one left bright. The tackle is to be overhauled its full length, and a strap placed around all parts of the fall, under each block. The outer block is to be placed under the reel,

on the left side, and all parts of the fall, coiled right-handed around upon the hawser, laying them down flat, finishing with the inner block under the reel, opposite the outer block.

(*f*) The gun is to be placed athwart the hawser, immediately over the axle, muzzle to the right. Stops, 3 feet long, are spliced into the top of the sides of the cart body, and are made fast through the front and rear handles of the right side of the gun carriage.

(*g*) Shot-line box A, containing No. 9 line, is to be placed across the cart in the rear of the gun, filling the space between the gun and the tailboard. Stops, 3 feet in length, are spliced into the top of the sides of the cart body and are made fast into the handles of the shot-line box, and No. 7 and No. 4 lines in their respective boxes are secured on top of all.

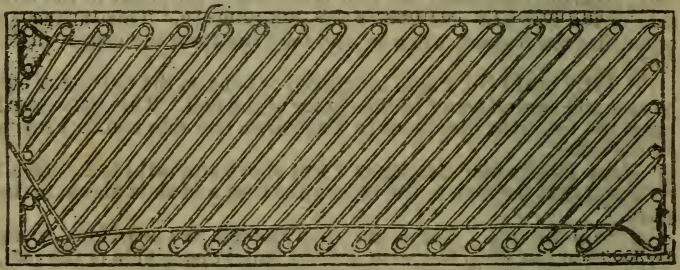

FIG. 15.—Method of faking the shot line.

(*h*) The shot lines must be faked as shown in the diagram (fig. 15), and hauled as closely around the pins as can be done without springing them.

(*i*) The rammer is to be placed between the gun and the shot-line box.

(*j*) The tailboard is cut away sufficiently on the top under the rails to admit of its being raised to drive under the tailboard and hawser two pieces of wood, one-half inch thick, 2 inches wide, and 3 feet long, one on each side, leaving 4 inches projecting. The sand anchor is to be placed across the rear end of the cart, upon its edge, resting upon these projecting pieces, the pennant hooked into it and moused.

(*k*) The stops spliced into the eyes of the tailboard rods are to be passed down outside of the anchor, around the horns of the cross frame of the cart body, back, up outside the anchor, and made fast in the eye again.

(*l*) The pennant is to be kept up in place by the same stops. The sharp point of the pickax is to be stuck between the sand anchor and the tailboard, on the left side, the handle to the right, the point of the pick resting upon the sand-anchor support.

(*m*) The loops of the shovel handles are to be placed over the upper horn of the pick, blades of the shovels to the right, and kept in place by a stop spliced around the right rear brace of the cart body and brought up over and around the shovel handles.

(*n*) A ¾-inch hole is bored through both legs of the crotch, at a distance from the bolt equal to the extreme length of the cart. A span of 1½-inch rope, 3 fathoms long, is spliced into one of these holes. The crotch is to be secured under the cart on the left side by taking a half hitch around both legs with this span, making the span fast around the horn of the after crosspiece of the cart body, the head of the crotch being made fast at the breast piece with a two-legged stop spliced there for that purpose.

(*o*) Three shots and a heaving stick and line are to be placed upon the hawser in front of the gun, a piece of bagging being put under them.

(*p*) Upon the gun there is to be placed a haversack containing the lanyard, priming wires, combination level, red flannel, three 6-ounce, three 5-ounce, and three 4-ounce cartridges, filled and marked, and 24 primers.

(*q*) The breeches buoy is to be laid flat, resting upon the reel and gun. The hawser cutter will be placed under the afterpart of the reel. The speaking trumpet is to be hung over the left headboard rod.

(*r*) The gun worm and ax are to be hung in leather beckets on the left and right sides of the cart body, respectively.

(*s*) The tarpaulin, stopped at the corners and sides, is to be spread over all.

(*t*) A water light shall always be carried, suspended from the underside of the cart. A life preserver also shall be carried on the cart for use in case a man must be sent into the surf with the lines. Signal flags shall be becketed underneath the cart.

(*u*) Two torches shall be secured to the headboard by the fixtures supplied with them.

(*v*) Two lanterns (unlighted till required for signaling) shall be carried, one on each side, attached to the uprights.

403. Loaded as above, the reel stanchions placed 6 inches from the headboard, the cart should exactly balance. If through difference in size and weight of crotch and sand anchor the cart does not balance, it can be adjusted by moving the gun a few inches forward or aft.

404. While standing in the house the cart should have a support under the center of the axle.

Hawser Cutter.

411. (1) After the crew is landed from a stranded vessel, it may be necessary to detach the hawser from the wreck, either for the purpose of using it elsewhere or because the wreck is rapidly breaking up. In either case the hawser cutter should be used. To do this, the breeches buoy is first removed, and then, facing the wreck and standing on the left of the hawser, the cutter is placed upon it by grasping it, as shown in figure 16, the white end of the cutter being inshore, the eyes of the knives inclined toward the wreck. The cutter is then closed and the clasp secured, head of pin to seaward.

(2) The becket in the outer end of the cutter should have two eyes formed in the bight by passing a seizing around both parts 2 inches from the bight, and a second seizing 2 inches from the first. The method of bending the whip to the hawser cutter is as follows (see fig. 17):

(3) Bend a bight of the weather part of the whip into the outer eye of the becket, leading from the outer end of the cutter, with a sheet bend, as at A, and the tail of the knife lanyards into another bight of the same part of the whip with a bowline knot, B, allowing sufficient slack line, C (say, 2 fathoms), to permit the knives to work.

(4) About 2 feet inshore of the last knot, take up another bight, D, of the whip, and pass it up through the second eye in the outer becket, toggling it with another bight, E. This transfers the weight of the whip from the knives to the becket, thus relieving the hawser from their pressure while the cutter is being hauled off to the wreck.

(5) Haul the cutter out as close as possible to the spar to which the hawser is secured, letting the part of the whip, F, fast to the knives, hang as loosely as possible.

(6) When the cutter reaches the spar hold fast to the hauling-out part, haul on the hauling-in part, F, attached to the knives, which

FIG. 16. Applying hawser cutter.

will remove the toggle bight E, freeing bight D from the eye, allowing the strain to come on the knives, which will cut the hawser.

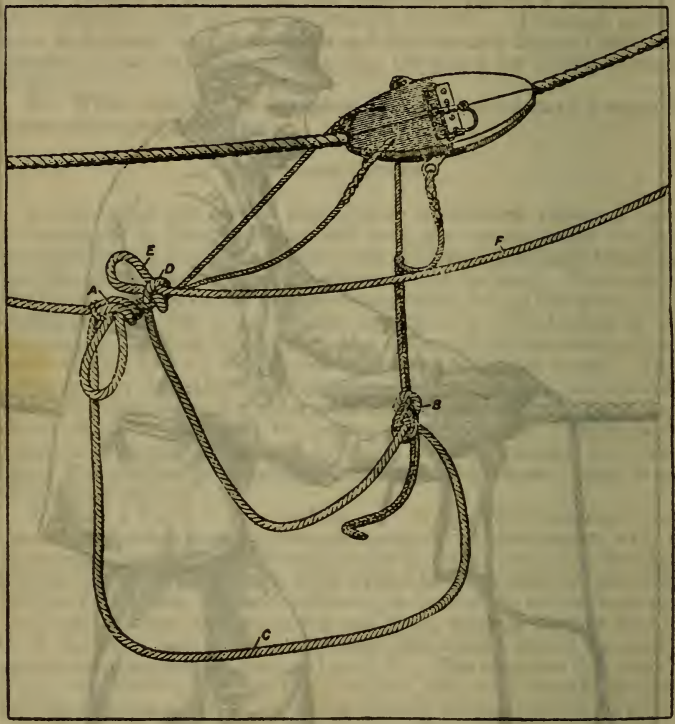

FIG. 17. Hawser cutter arranged for hauling off.

(7) Haul the hawser in as quickly as possible, to prevent its unlaying. Haul back, and unbend the whip from the cutter. Unreeve the whip. Keep the knives sharp, and all ironwork of the cutter oiled.

MUSTER AT A STATION BY AN INSPECTING OFFICER.

421. (1) The muster shall be held in the most suitable place at the station, as directed by the inspecting officer. The uniform shall be clean blue.

(2) The officer in charge shall form the line, giving the commands, **Fall in, Right dress,** and **Front,** and when the line is dressed, he shall take position as near as possible in front of the center of it and shall command, **Hand, SALUTE.** The officer in charge then faces about, salutes, and reports to the inspecting officer, "Sir, the crew is mustered." The inspecting officer returns the salute and commands, "Call the roll, sir." The officer in charge faces about and commands, **Two,** at which the men drop their hands. He then calls the roll. Each man as his name is called answers with his watch number, the senior answering for each absentee by stating that he is "On lookout," "In hospital," "Absent without leave," etc., as the case may be. After the roll is called the officer in charge takes position to the right of the line.

(3) The inspecting officer inspects the uniforms, obtains required data, and asks the usual questions as to complaints, and when he finishes commands **Dismiss.**

(4) The officer in charge salutes, steps 2 paces to the front, faces left, marches to the center of the line, faces left again, and commands **DISMISSED.**

SCHOOL OF THE RECRUIT.

422. For preliminary instruction a number of recruits, usually not exceeding three or four, are formed as a squad in single rank.

POSITION OF ATTENTION.

423. Heels on the same line and as near each other as the conformation of the man permits.

Feet turned out equally and forming an angle of about 45°.

Knees straight without stiffness.

Hips level and drawn back slightly; body erect and resting equally on hips; chest lifted and arched; shoulders square and falling equally.

Arms and hands hanging naturally, thumb along the seam of the trousers.

Head erect and squarely to the front, chin drawn in so that the axis of the head and neck is vertical; eyes straight to the front.

Weight of the body resting equally upon the heels and balls of the feet.

THE RESTS.

424. Being at halt, the commands are: **FALL OUT; REST; AT EASE**; and (1) **Parade**, (2) **REST.**

At the command fall out, the men may leave the ranks, but are required to remain in the immediate vicinity. They resume their former places, at attention, at the command **Fall in.**

At the command rest each man keeps one foot in place, but is not required to preserve silence or immobility.

At the command at ease, each man keeps one foot in place and is required to preserve silence but not immobility.

425. (1) **Parade**, (2) **REST.**—Carry the right foot 6 inches straight to the rear, left knee slightly bent; clasp the hands, without constraint, in front of the center of the body, fingers joined, left hand uppermost, left thumb clasped by the thumb and forefinger of the right hand; preserve silence and steadiness of position.

426. To resume the attention: (1) **Squad**, (2) **ATTENTION.** The men take the position of attention.

EYES RIGHT OR LEFT.

427. (1) **Eyes**, (2) **RIGHT** (**LEFT**) (3) **FRONT.** At the command **right**, turn the head to the right oblique, eyes fixed on the line of eyes of the men in, or supposed to be in, the same rank. At the command **front**, turn the head and eyes to the front.

FACINGS.

428. To the flank: (1) **Right** (**left**) (2) **FACE.**

Raise slightly the left heel and right toe; face to the right, turning on the right heel, assisted by a slight pressure on the ball of the left foot; place the left foot by the side of the right. Left face is executed on the left heel in the corresponding manner.

Right (**left**) half face is executed similarly, facing 45°.

"To face in marching" and advance, turn on the ball of either foot and step off with the other foot in the new line of direction; to face in marching without gaining ground in the new direction, turn on the ball of either foot and mark time.

429. To the rear: (1) **About**, (2) **FACE.**

Carry the toe of the right foot about a half foot-length to the rear and slightly to the left of the left heel without changing the position of the left foot; face to the rear, turning to the right on the left heel and right toe; place the right heel by the side of the left.

SALUTES.

430. (1) Nothing gives a better indication of the state of discipline than the observance of the forms of military courtesy.

(2) From time immemorial the salute has been a form of military courtesy that has been strictly and conscientiously observed by men of every nationality who followed the profession of arms.

(3) In regard to personal salutes, a junior always salutes a senior. An enlisted man salutes an officer, and the very officer saluted is called to account if he fails to salute another officer, his senior.

(4) If uncertainty exists in regard to the necessity for saluting, the only rule to follow is to render the salute. It is far better to salute, even if in doubt as to the necessity for so doing, than to expose yourself to the chance of censure and reprimand, and to be thought ignorant of the rules of one of the most essential and elementary requirements of a military service.

431. (1) **Hand,** (2) **SALUTE.** Raise the right hand smartly till the tip of the forefinger touches the lower part of the headdress above the right eye, thumb and fingers extended and joined, palm to the left, forearm inclined at about 45°, hand and wrist straight; at the same time look toward the person saluted. (2) Drop the arm smartly by the side.

STEPS AND MARCHINGS.

432. All steps and marchings, executed from a halt, except right step, begin with the left foot.

433. The length of the full step in quick time is 30 inches, measured from heel to heel, and the cadence is at the rate of 120 steps per minute.

The length of the full step in double time is 36 inches; the cadence is at the rate of 180 steps per minute.

The instructor, when necessary, indicates the cadence of the step by calling **one, two, three, four,** or **left, right,** the instant the left and right foot, respectively, should be planted.

434. All steps and marchings and movements involving march are executed in **quick time** unless the squad be marching in double time, or **double time** be added to the command; in the latter case **double time** is added to the preparatory command. Example: (1) **Squad right, double time,** (2) **MARCH** (school of the squad).

QUICK TIME.

435. Being at a halt, to march forward in quick time: (1) **Forward,** (2) **MARCH.**

At the command **Forward,** shift the weight of the body to the right leg, left knee straight.

At the command **march,** move the left foot smartly straight forward 30 inches from the right, sole near the ground, and plant it without shock; next, in like manner, advance the right foot and plant it as above; continue the march. The arms swing naturally.

436. Being at a halt, or in march in quick time, to march in double time: (1) **Double time,** (2) **MARCH.**

If at a halt, at the first command shift the weight of the body to the right leg. At the command **march,** raise the forearms, fingers closed, to a horizontal position along the waist line; take up an easy run with the step and cadence of double time, allowing a natural swinging motion to the arms.

If marching in quick time, at the command **march,** given as either foot strikes the ground, take one step in quick time, and then step off in double time.

437. To resume the quick time: (1) **Quick time,** (2) **MARCH.**

At the command **march,** given as either foot strikes the ground, advance and plant the other foot in double time; resume the quick time, dropping the hands by the sides.

TO MARK TIME.

438. Being in march: (1) **Mark time,** (2) **MARCH.**

At the command **march,** given as either foot strikes the ground, advance and plant the other foot; bring up the foot in rear and continue the cadence by alternately raising each foot about 2 inches and planting it on line with the other.

Being at a halt, at the command **march,** raise and plant the feet as described above.

THE HALF STEP.

439. (1) **Half step,** (2) **MARCH.**

Take steps of 15 inches in quick time, 18 inches in double time.

440. **Forward, half step, halt,** and **mark time** may be executed one from the other in quick or double time.

To resume the full step from half step or mark time: (1) **Forward,** (2) **MARCH.**

SIDE STEP.

441. Being at a halt or mark time: (1) **Right (left) step,** (2) **MARCH.**

Carry and plant the right foot 15 inches to the right; bring the left foot beside it and continue the movement in the cadence of quick time.

The side step is used for short distances only and is not executed in double time.

If at order arms, the side step is executed at trail without command.

BACK STEP.

442. Being at a halt or mark time: (1) **Backward,** (2) **MARCH.**

Take steps of 15 inches straight to the rear.

The back step is used for short distances only and is not executed in double time.

If at order arms, the back step is executed at trail without command.

TO HALT.

443. To arrest the march in quick or double time: (1) **Squad,** (2) **HALT.**

At the command **halt,** given as either foot strikes the ground, plant the other foot as in marching; raise and place the first foot by the side of the other. If in double time, drop the hands by the sides.

TO MARCH BY THE FLANK.

444. Being in march: (1) **By the right (left) flank,** (2) **MARCH.**

At the command **march,** given as the right foot strikes the ground, advance and plant the left foot, then face to the right in marching and step off in the new direction with the right foot.

TO MARCH TO THE REAR.

445. Being in march: (1) **To the rear,** (2) **MARCH.**

At the command **march,** given as the right foot strikes the ground, advance and plant the left foot; turn to the right about on the balls of both feet and immediately step off with the left foot.

If marching in double time, turn to the right about, taking four steps in place, keeping the cadence, and then step off with the left foot.

CHANGE STEP.

446. Being in march: (1) **Change step**, (2) **MARCH**.

At the command **march**, given as the right foot strikes the ground, advance and plant the left foot; plant the toe of the right foot near the heel of the left and step off with the left foot.

The change on the right foot is similarly executed, the command **march** being given as the left foot strikes the ground.

MANUAL OF ARMS.

447. As soon as practicable the recruit is taught the use, nomenclature, and care of his rifle (see art. 507 et seq.); when fair progress has been made in the instruction without arms, he is taught the manual of arms; instruction without arms and that with arms alternate.

448. The following rules govern the carrying of the piece:

First. The piece is not carried with cartridges in either the chamber or the magazine except when specifically ordered. When so loaded, or supposed to be loaded, it is habitually carried locked; that is, with the **safety lock** turned to the "safe." At all other times it is carried unlocked, with the trigger pulled.

Second. Whenever troops are formed under arms, pieces are immediately inspected at the commands: (1) **Inspection**, (2) **ARMS**, (3) **Order (right shoulder, port)**, (4) **ARMS**.

A similar inspection is made immediately before dismissal.

If cartridges are found in the chamber or magazine, they are removed and placed in the belt.

Third. The cut-off is kept turned "off," except when cartridges are actually used.

Fourth. The bayonet is not fixed except for bayonet training, on guard, or for combat.

Fifth. **Fall in** is executed with the piece at the order arms. **Fall out, rest**, and **at ease** are executed as without arms. On resuming attention the position of order arms is taken.

Sixth. If at the order, unless otherwise prescribed, the piece is brought to the right shoulder at the command **march**, the three motions corresponding with the first three steps. Movements may be executed at the trail by prefacing the preparatory command with the words **at trail**; as (1) **At trail, forward**, (2) **MARCH**; the trail is taken at the command **march**.

When the facings, alignments, open and close ranks, taking interval or distance, and assemblings are executed from the order, raise the piece to the trail while in motion and resume the order on halting.

Seventh. The piece is brought to the order on halting. The execution of the order begins when the halt is completed.

Eighth. A disengaged hand in double time is held as when without arms.

449. The following rules govern the execution of the manual of arms:

First. In all positions of the left hand at the balance (center of gravity, bayonet unfixed) the thumb clasps the piece; the sling is included in the grasp of the hand.

Second. In all positions of the piece "diagonally across the body" the position of the piece, left arm, and hand are the same as in port arms.

Third. In resuming the order from any position in the manual, the motion next to the last concludes with the butt of the piece about 3 inches from the ground, barrel to the rear, the left hand above and near the right, steadying the piece, fingers extended and joined, forearm and wrist straight and inclining downward, all fingers of the right hand grasping the piece. To complete the order, lower the piece gently to the ground with the right hand, drop the left quickly by the side, and take the position of order arms.

Allowing the piece to drop through the right hand to the ground, or other similar abuse of the rifle to produce effect in executing the manual, is prohibited.

Fourth. The cadence of the motions is that of quick time; the recruits are first required to give their whole attention to the details of the motions, the cadence being gradually acquired as they become accustomed to handling their pieces. The instructor may require them to count aloud in cadence with the motions.

Fifth. The manual is taught at a halt, and the movements are, for the purpose of instruction, divided into motions and executed in detail; in this case the command of execution determines the prompt execution of the first motion, and the commands, two, three, four, that of the other motions.

To execute the movements in detail, the instructor first cautions **By the numbers**; all movements divided into motions are then executed as above explained until he cautions **Without the numbers**; or commands movements other than those in the manual of arms.

Sixth. Whenever circumstances require, the regular positions of the manual of arms and the firings may be ordered without regard to the previous position of the piece.

Under exceptional conditions of weather or fatigue, the rifle may be carried in any manner directed.

450. **Position of order arms standing:** The butt rests evenly on the ground, barrel to the rear, toe of the butt on a line with toe of and touching the right shoe, arms and hands hanging naturally, right hand holding the piece between the thumb and fingers.

451. Being at order arms: (1) **Present,** (2) **ARMS.**

With the right hand carry the piece in front of the center of the body, barrel to the rear and vertical, grasp it with the left hand at the balance, forearm horizontal and resting against the body. (2) Grasp the small of the stock with the right hand.

452. Being at order arms: (1) **Port,** (2) **ARMS.**

With the right hand raise and throw the piece diagonally across the body, grasp it smartly with both hands; the right palm down, at the small of the stock; the left palm up, at the balance; barrel up, sloping to the left and crossing opposite the junction of the neck with the left shoulder; right forearm horizontal; left forearm resting against the body; the piece in a vertical plane parallel to the front.

453. Being at present arms: (1) **Port,** (2) **ARMS.**

Carry the piece diagonally across the body and take the position of port arms.

454. Being at port arms: (1) **Present,** (2) **ARMS.**

Carry the piece to a vertical position in front of the center of the body and take the position of present arms.

455. Being at present or port arms: (1) **Order,** (2) **ARMS.**

Let go with the right hand; lower and carry the piece to the right with the left hand; regrasp it with the right hand just above the lower band; let go with the left hand, and take the next to the last position in coming to the order. (2) Complete the order.

456. Being at order arms: (1) **Right shoulder,** (2) **ARMS.**

With the right hand raise and throw the piece diagonally across the body; carry the right hand quickly to the butt, embracing it, the heel between the first two fingers. (2) Without changing the grasp of the right hand, place the piece on the right shoulder, barrel up and inclined at an angle of about 45° from the horizontal, trigger guard in the hollow of the shoulder, right elbow near the side, the piece in a vertical plane perpendicular to the front; carry the left hand, thumb and fingers extended and joined, to the small of the

stock, tip of the forefinger touching the cocking piece, wrist straight and elbow down. (3) Drop the left hand by the side.

457. Being at right shoulder arms: (1) **Order,** (2) **ARMS.**

Press the butt down quickly and throw the piece diagonally across the body, the right hand retaining the grasp of the butt. (2), (3) Execute order arms as described from port arms.

458. Being at port arms: (1) **Right shoulder,** (2) **ARMS.**

Change the right hand to the butt. (2), (3) As in right shoulder arms from order arms.

459. Being at right shoulder arms: (1) **Port,** (2) **ARMS.**

Press the butt down quickly and throw the piece diagonally across the body, the right hand retaining its grasp of the butt. (2) Change the right hand to the small of the stock.

460. Being at right shoulder arms: (1) **Present,** (2) **ARMS.**

Execute port arms. (3) Execute present arms.

461. Being at present arms: (1) **Right shoulder,** (2) **ARMS.**

Execute port arms. (2), (3), (4) Execute right shoulder arms as from port arms.

462. Being at port arms: (1) **Left shoulder,** (2) **ARMS.**

Carry the piece with the right hand and place it on the left shoulder, barrel up, trigger guard in the hollow of the shoulder; at the same time grasp the butt with the left hand, heel between first and second fingers, thumb and fingers closed on the stock. (2) Drop the right hand by the side.

Being at left shoulder arms: (1) **Port,** (2) **ARMS.**

Grasp the piece with the right hand at the small of the stock. (2) Carry the piece to the right with the right hand, regrasp it with the left, and take the position of port arms.

Left shoulder arms may be ordered directly from the order, right shoulder, or present, or the reverse. At the command **arms** execute **port arms** and continue in cadence to the position ordered.

463. Being at order arms: (1) **Parade,** (2) **REST.**

Carry the right foot 6 inches straight to the rear, left knee slightly bent; carry the muzzle in front of the center of the body, barrel to the left; grasp the piece with the left hand just below the stacking swivel, and with the right hand below and against the left.

Being at parade rest: (1) **Squad,** (2) **ATTENTION.**

Resume the order, the left hand quitting the piece opposite the right hip.

464. Being at order arms: (1) **Trail,** (2) **ARMS.**

Raise the piece, right arm slightly bent, and incline the muzzle forward so that the barrel makes an angle of about 30° with the vertical.

When it can be done without danger or inconvenience to others, the piece may be grasped at the balance and the muzzle lowered until the piece is horizontal; a similar position in the left hand may be used.

465. Being at trail arms: (1) **Order**, (2) **ARMS.**

Lower the piece with the right hand and resume the order.

RIFLE SALUTE.

446. Being at right shoulder arms: (1) **Rifle**, (2) **SALUTE.**

Carry the left hand smartly to the small of the stock, forearm horizontal, palm of hand down, thumb and fingers extended and joined, forefinger touching end of cocking piece; look toward the person saluted. (2) Drop left hand by the side; turn head and eyes to the front.

467. Being at order or trail arms: (1) **Rifle**, (2) **SALUTE.**

Carry the left hand smartly to the right side, palm of the hand down, thumb and fingers extended and joined, forefinger against piece near the muzzle; look toward the person saluted. (2) Drop the left hand by the side; turn the head and eyes to the front.

THE INSPECTION.

468. Being at order arms: (1) **Inspection**, (2) **ARMS.**

At the second command take the position of port arms. (2) Seize the bolt handle with the thumb and forefinger of the right hand, turn the handle up, draw the bolt back, and glance at the chamber. Having found the chamber empty, or having emptied it, raise the head and eyes to the front.

469. Being at inspection arms: (1) **Order (right shoulder, port)**, (2) **ARMS.**

At the preparatory command push the bolt forward, turn the handle down, pull the trigger, and resume port arms. At the command arms, complete the movement ordered.

TO DISMISS THE SQUAD.

470. Being at halt: (1) **Inspection**, (2) **ARMS**; (3) **Port**, (4) **ARMS**; (5) **DISMISSED.**

SCHOOL OF THE SQUAD.

471. Men are grouped into squads for purposes of instruction, discipline, control, and order.

472. The squad proper consists of a 2 p. o. and seven men.

The movements in the School of the Squad are designed to make the squad a fixed unit and to facilitate the control and movement of the company. If the number of men grouped is more than 3 and less than 12, they are formed as a squad of 4 files, the excess above 8 being posted as file closers. If the number grouped is greater than 11, 2 or more squads are formed and the group is termed a platoon.

For the instruction of recruits, these rules may be modified.

473. A 2 p. o. is the squad leader, and when absent is replaced by a designated man. If none is designated, the senior in length of service acts as leader.

The 2 p. o., when in ranks, is posted as the left man in the front rank of the squad.

When he leaves the ranks to lead his squad, his rear-rank man steps into the front rank, and the file remains blank until the squad leader returns to his place in ranks, when his rear-rank man steps back into the rear rank.

474. In battle officers and 1 p. os. endeavor to preserve the integrity of squads; they designate new leaders to replace those disabled, organize new squads when necessary, and see that every man is placed in a squad.

Men are taught the necessity of remaining with the squad to which they belong and, in case it be broken up or they become separated therefrom, to attach themselves to the nearest squad and platoon leaders, whether these be of their own or of another organization.

475. The squad executes the **halt, rests, facings, steps, and marchings** and the **manual of arms** as explained in the School of the Recruit.

TO FORM THE SQUAD.

476. To form the squad the instructor places himself 3 paces in front of where the center is to be and commands: **FALL IN.**

The men assemble at attention, pieces at the order, and are arranged by the 2 p. o. in double rank, as nearly as practicable in order of height from right to left, each man dropping his left hand as soon as the man on his left has his interval. The rear rank forms with the distance of 40 inches.

The instructor then commands: **COUNT OFF.**

At this command all except the right file execute eyes right, and, beginning on the right, the men in each rank count one, two, three, four; each man turns his head and eyes to the front as he counts.

Pieces are then inspected.

ALIGNMENTS.

477. To align the squad, the base file or files having been established: (1) **Right (left),** (2) **DRESS,** (3) **FRONT.**

At the command dress all men place the left hand upon the hip (whether dressing to the right or left); each man, except the base file, when on or near the new line executes eyes right, and, taking steps of 2 or 3 inches, places himself so that his right arm rests lightly against the arm of the man on his right, and so that his eyes and shoulders are in line with those of the men on his right; the rear-rank men cover in file.

The instructor verifies the alignment of both ranks from the right flank and orders up or back such men as may be in rear or in advance of the line; only the men designated move.

At the command front, given when the ranks are aligned, each man turns his head and eyes to the front and drops his left hand by his side.

478. To preserve the alignment when marching: **GUIDE RIGHT (LEFT).**

The men preserve their intervals from the side of the guide, yielding to pressure from that side and resisting pressure from the opposite direction; they recover intervals, if lost, by gradually opening out or closing in; they recover alignment by slightly lengthening or shortening the step; the rear-rank men cover their file leaders at 40 inches.

In double rank, the front-rank man on the right, or designated flank, conducts the march; when marching faced to the flank, the leading man of the front rank is the guide.

TO STACK AND TAKE ARMS.

479. Being in line at a halt: **STACK ARMS.**

Each even number of the front rank grasps his piece with the left hand at the upper band and rests the butt between his feet, barrel to the front, muzzle inclined slightly to the front and opposite

the center of the interval on his right, the thumb and forefinger raising the stacking swivel; each even number of the rear rank then passes his piece, barrel to the rear, to his file leader, who grasps it between the bands with his right hand and throws the butt about 2 feet in advance of that of his own piece and opposite the right of the interval, the right hand slipping to the upper band, the thumb and forefinger raising the stacking swivel, which he engages with that of his own piece; each odd number of the front rank raises his piece with the right hand, carries it well forward, barrel to the front; the left hand, guiding the stacking swivel, engages the lower hook of the swivel of his own piece with the free hook of that of the even number of the rear rank; he then turns the barrel outward into the angle formed by the other two pieces and lowers the butt to the ground, to the right of and against the toe of his right shoe.

The stacks made, the loose pieces are laid on them by the even numbers of the front rank.

When each man has finished handling pieces, he takes the position of attention.

480. Being in line behind the stacks: **TAKE ARMS.**

The loose pieces are returned by the even numbers of the front rank; each even number of the front rank grasps his own piece with the left hand, the piece of his rear-rank man with his right hand, grasping both between the bands; each odd number of the front rank grasps his piece in the same way with the right hand, disengages it by raising the butt from the ground and then turning the piece to the right, detaches it from the stack; each even number of the front rank disengages and detaches his piece by turning it to the left, and then passes the piece of his rear-rank man to him, and all resume the order.

481. Should any squad have Nos. 2 and 3 blank files, No. 1 rear rank takes the place of No. 2 rear rank in making and breaking the stack; the stacks made or broken, he resumes his post.

Pieces not used in making the stack are termed **loose pieces.**

Pieces are never stacked with the bayonet fixed.

THE OBLIQUE MARCH.

482. For the instruction of recruits, the squad being in column or correctly aligned, the instructor causes the squad to face half right or half left, points out to the men their relative positions, and explains that these are to be maintained in the oblique march.

483. (1) **Right (left) oblique,** (2) **MARCH.**

Each man steps off in a direction 45° to the right of his original front. He preserves his relative position, keeping his shoulders parallel to those of the guide (the man on the right front of the line or column), and so regulates his steps that the ranks remain parallel to their original front.

At the command halt the men halt and face to the front.

To resume the original direction: (1) Forward, (2) **MARCH.**

The men half face to the left in marching and then move straight to the front.

If at half step or mark time while obliquing, the oblique march is resumed by the commands: (1) **Oblique,** (2) **MARCH.**

TO TURN ON A MOVING PIVOT.

484. Being in line: (1) **Right (left) turn,** (2) **MARCH.**

The movement is executed by each rank successively and on the same ground. At the second command, the pivot man of the front rank faces to the right in marching and takes the half step; the other men of the rank oblique to the right until opposite their places in line, then execute a second right oblique and take the half step on arriving abreast of the pivot man. All glance toward the marching flank while at half step and take the full step without command as the last man arrives on the line.

Right (left) half turn is executed in a similar manner. The pivot man makes a half change of direction to the right and the other men make quarter changes in obliquing.

TO TURN ON A FIXED PIVOT.

485. Being in line, to turn and march: (1) **Squad right (left),** (2) **MARCH.**

At the second command, the right-flank man in the front rank faces to the right in marching and marks time; the other front-rank men oblique to the right, place themselves abreast of the pivot, and mark time. In the rear rank the third man from the right, followed in column by the second and first, moves straight to the front until in rear of his front-rank man, when all face to the right in marching and mark time; the other number of the rear rank moves straight to the front four paces and places himself abreast of the man on his right. Men on the new line glance toward the marching flank while marking time and, as the last man arrives on the line, both ranks execute **forward, march,** without command.

486. Being in line, to turn and halt: (1) **Squad right (left)**, (2) **MARCH**; (3) **Squad**, (4) **HALT.**

The third command is given immediately after the second. The turn is executed as prescribed in the preceding article, except that all men, on arriving on the new line, mark time until the fourth command is given, when all halt. The fourth command should be given as the last man arrives on the line.

487. Being in line to turn about and march: (1) **Squad right (left) about** (2) **MARCH.**

At the second command, the front rank twice executes **squad right,** initiating the second squad right when the man on the marching flank has arrived abreast of the rank. In the rear rank the third man from the right, followed by the second and first in column, moves straight to the front until on the prolongation of the line to be ocupied by the rear rank; changes direction to the right; moves in the new direction until in rear of his front-rank man, when all face to the right in marching, mark time, and glance toward the marching flank. The fourth man marches on the left of the third to his new position; as he arrives on the line, both ranks execute **forward march,** without command.

488. Being in line to turn about and halt: (1) **Squad right (left) about,** (2) **MARCH**; (3) **Squad,** (4) **HALT.**

The third command is given immediately after the second. The turn is executed as prescribed in the preceding article, except that all men, on arriving on the new line, mark time until the fourth command is given, when all halt. The fourth command should be given as the last man arrives on the line.

LOADINGS AND FIRINGS.

489. The commands for loading and firing are the same whether standing, kneeling, or lying down. The firings are always executed at a halt.

When kneeling or lying down in double rank, the rear rank does not load, aim or fire.

The instructions in firing will be preceded by a command for loading.

Loadings are executed in line and skirmish line only.

490. Pieces having been ordered loaded are kept loaded without command until the command **unload,** or **inspection arms,** fresh clips being inserted when the magazine is exhausted.

491. The aiming point or target is carefully pointed out. This may be done before or after announcing the sight setting. Both are indicated before giving the command for firing, but may be omitted when the target appears suddenly and is unmistakable; in such case battle sight is used if no sight setting is announced.

492. The target or aiming point having been designated and the sight setting announced, such designation or announcement need not be repeated until a change of either or both is necessary.

Troops are trained to continue their fire upon the aiming point or target designated, and at the sight setting announced, until a change is ordered.

493. If the men are not already in the position of load, that position is taken at the announcement of the sight setting; if the announcement is omitted, the position is taken at the first command for firing.

494. When deployed, the use of the sling as an aid to accurate firing is discretionary with each man.

TO LOAD.

495. Being in line or skirmish line at halt: (1) **With dummy (blank or ball) cartridges, (2) LOAD.**

At the command load each front-rank man or skirmisher faces half right and carries the right foot to the right, about 1 foot, to such position, as will insure the greatest firmness and steadiness of the body; raises, or lowers, the piece and drops it into the left hand at the balance, left thumb extended along the stock, muzzle at the height of the breast, and turns the cut-off up. With the right hand he turns and draws the bolt back, takes a loaded clip and inserts the end in the clip slots, places the thumb on the powder space of the top cartridge, the fingers extending around the piece and tips resting on the magazine floor plate; forces the cartridges into the magazine by pressing down with the thumb; without removing the clip, thrusts the bolt home, turning down the handle; turns the safety lock to the "safe" and carries the hand to the small of the stock. Each rear-rank man moves to the right front, takes a similar position opposite the interval to the right of his front-rank man, muzzle of the piece extending beyond the front rank, and loads.

A skirmish line may load while moving, the pieces being held as nearly as practicable in the position of load.

If kneeling or sitting, the position of the piece is similar; if kneeling, the left forearm rests on the left thigh; if sitting, the elbows are supported by the knees. If lying down, the left hand steadies and supports the piece at the balance, the toe of the butt resting on the ground, the muzzle off the ground.

For reference, these positions (standing, kneeling, and lying down) are designated as that of load.

496. For instruction in loading: (1) Simulate, (2) **LOAD.**

Executed as above described except that the cut-off remains "off" and the handling of cartridges is simulated.

The recruits are first taught to simulate loading and firing; after a few lessons dummy cartridges may be used. Later, blank cartridges may be used.

497. The rifle may be used as a single loader by turning the magazine "off."[2] The magazine may be filled in whole or in part while "off" or "on" by pressing cartridges singly down and back until they are in the proper place. The use of the rifle as a single loader is, however, to be regarded as exceptional.

TO UNLOAD.

498. **UNLOAD.**

Take the position of load, turn the safety lock up and move bolt alternately back and forward until all the cartridges are ejected. After the last cartridge is ejected the chamber is closed by first thrusting the bolt slightly forward to free it from the stud holding it in place when the chamber is open, pressing the follower down and back to engage it under the bolt and then thrusting the bolt home; the trigger is pulled. The cartridges are then picked up, cleaned, and returned to the belt and the piece is brought to the order.

TO FIRE BY VOLLEY.

499. (1) **READY**, (2) **AIM**, (3) **Squad**, (4) **FIRE.**

At the command ready turn the safety lock to the "ready"; at the command aim raise the piece with both hands and support the butt firmly against the hollow of the right shoulder, right thumb along the stock, barrel horizontal, left elbow well under the piece, right elbow as high as the shoulder; incline the head slightly forward and a little to the right, cheek against the stock, left eye closed, right eye looking through the notch of the rear sight so as to perceive the object aimed at, second joint of forefinger resting lightly against the front

of the trigger and taking up the slack; top of front sight is carefully raised into, and held in, the line of sight.

Each rear-rank man aims through the interval to the right of his file leader and leans slightly forward to advance the muzzle of his piece beyond the front rank.

In aiming kneeling, the left elbow rests on the left knee, point of elbow in front of kneecap. In aiming sitting, the elbows are supported by the knees.

In aiming lying down, raise the piece with both hands; rest on both elbows and press the butt firmly against the right shoulder.

At the command fire press the finger against the trigger; fire without deranging the aim and without lowering or turning the piece; lower the piece to the position of load and load.

500. To continue the firing: (1) **AIM**, (2) **Squad**, (3) **FIRE**.

Each command is executed as previously explained. **Load** (from magazine) is executed by drawing back and thrusting home the bolt with the right hand, leaving the safety lock at the "ready."

TO FIRE AT WILL.

501 **FIRE AT WILL.**

Each man, independently of the others, comes to the **ready**, aims carefully and deliberately at the aiming point or target, fires, loads, and continues the firing until ordered to **suspend** or **cease firing.**

502. To increase (decrease) the rate of fire in progress the instructor shouts: **FASTER** (**SLOWER**).

Men are trained to fire at the rate of about three shots per minute at effective ranges and five or six at close ranges, devoting the minimum of time to loading and the maximum to deliberate aiming. To illustrate the necessity for deliberation, and to habituate men to combat conditions, small and comparatively indistinct targets are designated.

TO FIRE BY CLIP.

503. **CLIP FIRE.**

Executed in the same manner as **fire at will**, except that each man, after having exhausted the cartridges then in the piece, suspends firing.

TO SUSPEND FIRING.

504. The instructor blows a long blast of the whistle and repeats same, if necessary, or commands: **SUSPEND FIRING.**

Firing stops; pieces are held, loaded and locked, in a position of readiness for instant resumption of firing, rear sights unchanged. The men continue to observe the target or aiming point, or the place at which the target disappeared, or at which it is expected to reappear.

This whistle signal may be used as a preliminary to cease firing.

TO CEASE FIRING.

505. **CEASE FIRING.**

Firing stops; pieces not already there are brought to the position of load; those not loaded are loaded; sights are laid, pieces are locked and brought to the order.

Cease firing is used for long pauses, to prepare for changes of position, or to steady the men.

506. Commands for suspending or ceasing fire may be given at any time after the preparatory command for firing, whether the firing has actually commenced or not.

THE RIFLE.

507. Most of the operating parts of the rifle may be included under the bolt mechanism and magazine mechanism.

(1) The bolt mechanism consists of the bolt, sleeve, sleeve lock, extractor, extractor collar, cocking piece, safety lock, firing pin, firing-pin sleeve, striker, and mainspring.

(2) The bolt moves backward and forward and rotates in the well of the receiver; it carries a cartridge, either from the magazine or one placed by hand in front of it, into the chamber and supports its head when fired.

(3) The sleeve unites the parts of the bolt mechanism and its rotation with the bolt is prevented by the lugs on its sides coming in contact with the receiver.

(4) The hook of the extractor engages in the groove of the cartridge case and retains the head of the latter in the countersink of the bolt until the case is ejected.

(5) The safety lock when turned to the left is inoperative; when turned to the right—which can only be done when the piece is cocked—the point of the spindle enters its notch in the bolt and locks the bolt; at the same time its cam forces the cocking piece slightly to the rear, out of contact with the sear, and locks the firing pin.

508. The magazine mechanism includes the floor plate, follower, magazine spring, and cut-off.

509. (1) To charge the magazine, see that the cut-off is turned up showing "on," draw the bolt fully to the rear, insert the cartridges from a clip or from the hand, and close the bolt. To charge the magazine from a clip, place either end of a loaded clip in its seat in the receiver and with the thumb of the right hand press the cartridges down into the magazine until the top cartridge is caught by the right edge of the receiver. The cartridge ramp guides the bullet and cartridge case into the chamber. The magazine can be filled, if partly filled, by inserting cartridges one by one.

(2) Pushing the bolt forward, after charging the magazine, ejects the clip.

510. (1) When the cut-off is turned down, the magazine is "off." The bolt can not be drawn fully back, and its front end projecting over the rear end of the upper cartridge holds it down in the magazine below the action of the bolt. The magazine mechanism then remains inoperative, and the arm can be used as a single loader, the cartridges in the magazine being held in reserve. The arm can readily be used as a single loader with the magazine empty.

(2) When the cut-off is turned up, the magazine is "on"; the bolt can be drawn fully to the rear, permitting the top cartridge to rise high enough to be caught by the bolt in its forward movement. As the bolt is closed, this cartridge is pushed forward into the chamber, being held up during its passage by the pressure of those below. The last one in the magazine is held up by the follower, the rib on which directs it into the chamber.

511. In magazine fire, after the last cartridge has been fired and the bolt drawn fully to the rear, the follower rises and holds the bolt open to show that the magazine is empty.

PRECAUTIONS.

512. (1) If it is desired to carry the piece cocked, with a cartridge in the chamber, the bolt mechanism should be secured by turning the safety lock to the right. Under no circumstances should the firing pin be let down by hand on a cartridge in the chamber.

(2) To obtain positive ejection, and to insure the bolt catching the top cartridge in magazine, when loading from the magazine, the bolt must be drawn fully to the rear in opening it.

(3) When the bolt is closed, or slightly forward, the cut-off may be turned up or down as desired. When the bolt is in its rearmost position, to pass from loading from the magazine to single loading, it is necessary to force the top cartridge or follower below the reach of the bolt, to push the bolt slightly forward, and to turn the cut-off down, showing "off."

(4) In case of a misfire it is unsafe to draw back the bolt immediately, as it may be a case of hangfire. In such cases the piece should be cocked by drawing back the cocking piece.

(5) It is essential for the proper working and preservation of all cams that they be kept lubricated.

DISMOUNTING AND ASSEMBLING.

513. The bolt and magazine mechanism can be dismounted without removing the stock. The latter should never be done except for making repairs, and then only by some selected and instructed man.

TO DISMOUNT BOLT MECHANISM.

514. (1) Place the cut-off at the center notch; cock the arm and turn the safety lock to a vertical position, raise the bolt handle and draw out the bolt.

(2) Hold bolt in left hand, press sleeve lock in with thumb of right hand to unlock sleeve from bolt and unscrew sleeve by turning to the left.

(3) Hold sleeve between forefinger and thumb of the left hand, draw cocking piece back with middle finger and thumb of right hand, turn safety lock down to the left with the forefinger of the right hand in order to allow the cocking piece to move forward in sleeve, thus partially relieving the tension of mainspring; with the cocking piece against the breast, draw back the firing-pin sleeve with the forefinger and thumb of right hand and hold it in this position while removing the striker with the left hand; remove firing-pin sleeve and mainspring; pull firing pin out of sleeve; turn safety-lock thumb piece to the right on sleeve and draw it to the rear through the groove made in sleeve for this purpose; turn the extractor to the right, forcing its tongue out of its groove in the front of the bolt, and force the extractor forward and off the bolt.

TO ASSEMBLE BOLT MECHANISM.

515. (1) Grasp with the left hand the rear of the bolt, handle up, and turn the extractor collar with the thumb and forefinger of the right hand until its lug is on a line with the safety lug on the bolt; take the extractor in the right hand and insert the lug on the collar in the undercuts in the extractor by pushing the extractor to the rear until its tongue comes in contact with the rim on the face of the bolt (a slight pressure with the left thumb on the top of the rear part of the extractor assists in this operation); turn the extractor to the right until it is over the right lug; take the bolt in the right hand and press the hook of the extractor against the butt plate or some rigid object until the tongue on the extractor enters its groove in the bolt.

(2) Place the safety lock, through the dismounting groove, into position on the sleeve and turn it down to the left so as to permit the firing pin to enter the sleeve as far as possible; place the cocking piece against the breast and put on mainspring, firing-pin sleeve, and striker. Holding the cocking piece between the thumb and forefinger of the left hand, draw the cocking piece back with thumb and middle finger of the right hand and turn the safety lock to a vertical position with the forefinger of the right hand; insert the firing pin in the bolt and screw up the sleeve (by turning it to the right) until the sleeve lock enters its notch on the bolt.

(3) See that the cut-off is at the center notch; hold the piece under floor plate in the fingers of the left hand, the thumb extending over the left side of the receiver; take bolt in right hand with safety lock in a vertical position and safety lug up; press rear end of follower down with left thumb and push bolt into the receiver; lower bolt handle; turn safety lock and cut-off down to the left with right hand.

TO DISMOUNT THE MAGAZINE MECHANISM.

516. (1) With the bullet end of a cartridge press on the floor-plate catch (through the hole in the floor plate), at the same time drawing the bullet to the rear; this releases the floor plate.

(2) Raise the rear end of the first limb of the magazine spring high enough to clear the lug on the floor plate and draw it out of its mortise; proceed in the same manner to remove the follower.

(3) To assemble magazine spring and follower to floor plate, reverse operation of dismounting.

(4) Insert the follower and magazine spring in the magazine, place the tenon on the front end of the floor plate in its recess in the magazine, then place the lug on the rear end of the floor plate in its slot in the guard, and press the rear end of the floor plate forward and inward at the same time, forcing the floor plate into its seat in the guard.

PRECAUTIONS.

517. Unless the bolt is drawn fully back the ejector will fail to work, and in magazine fire it will cause a jam.

When a misfire occurs, press the bolt handle well down, pull the cocking piece to the rear, and try again. Unless the bolt handle is fully down the firing pin does not strike with full force. Almost all misfires are due to this fault.

See that the guard screws are kept tight. Loose guard screws not only prevent good shooting but also interfere with the proper feeding of cartridges from the magazine, often resulting in a jam.

For practicing the motions of rapid fire with the rifle unloaded, turn the cut-off down or "off," otherwise the bolt can not be worked back and forth.

518. The rifle is a weapon of precision, and demands proper care and cleaning. A lack of care soon ruins its accuracy.

After a day's shooting the bore demands special attention, as the residium from smokeless powder soon corrodes it, and should be removed as soon as practicable.

There are three kinds of fouling:

(*a*) A black deposit, easily removed by oily rags.

(*b*) An acid deposit or gas, forced into the texture of the steel, which gradually comes out, and, unless removed, causes rust. Cleaning must be repeated daily for several days.

(*c*) Metal fouling, caused by particles of the cupro-nickel jacket of the bullet adhering to the bore. This rarely happens with the present ammunition, and its removal is usually not only impracticable in the field but unless done by an experienced man may cause serious damage to the bore.

519. *To clean the rifle.*—(1) Remove the bolt and clean from the breech end. Never clean from the muzzle.

(2) Use a cleaning rod and small piece of cloth about 1½ inches square, then lightly oil the bore by using an oiled rag. The metal and working parts are also cleaned by using dry rags, and then oiling with a slightly oiled rag to prevent rusting and to lubricate working parts.

(3) No more oil than this light oiling should be used, because any surplus oil makes the rifle disagreeable to handle, collects dirt and grit, finds its way into and around the bolt mechanism, and often flies back into the firer's face and eyes when he fires. The bolt handle should be dry and entirely free from oil, otherwise in operating the bolt it is difficult to grasp firmly.

(4) If available, a saturated solution of soda and water may be used to clean the bore, thoroughly drying the bore with dry patches before oiling. Or the following mixture may be used: Amyl acetate, 2 parts; acetone, 2 parts; gas engine oil, 1 part. Dissolve the oil in the acetate and add the acetone.

(5) Whatever the method of cleaning, the bore should be cleaned daily for several days.

(6) Cosmoline, machine oil, or any other oil which will not rust the metal is suitable for oiling rifles. Sperm oil is the best for lubricating metallic bearing and contact surfaces, a somewhat heavier oil for the bore. Never use emery or any other material which will scratch the metal.

(7) The stock and hand guard may be coated with raw linseed oil and polished by rubbing with the hand.

SIGHT SETTING.

520. The marks opposite the peep indicate where the sight is to be set. The numbers on the sight leaf refer to the marks below the numbers; for example, the figure 6 is above the 600-yard mark. Changes in elevation of 25, 50, and 75 yards have to be made, and when there are no marks for these settings they have to be estimated, and with great care, for a slight inaccuracy makes a big difference in the point of hit.

521. The marks on the wind gauge are called points, and changes in windage of quarter points may have to be made.

The bullet is carried in the same direction that the sights are moved; for example, if shots strike above and to the right of the bull's-eye, the elevation should be lowered and the windage set to the left. Winds carry the bullet to the right or left with the wind; therefore the windage is set to windward.

522. The elevation is not always set at exactly the actual range at which the firing takes place. With some rifles the elevation is set above the range and with others below it, and all rifles are not exactly true for windage.

To teach sight setting it is not sufficient to explain it to the men. They must be practiced in it.

NOTES ON PISTOL SHOOTING.

523. When a pistol is first taken in hand it should be examined to make sure that it is not loaded.

524. Both the front sight and the rear sighting groove should be blackened. When the pistol is aimed the front sight should be seen through the middle of the rear sighting groove and the top of the front sight should be flush with the top of the groove. The part of the target to be aimed at must be determined by practice. With most pistols, at 25 yards the aim is usually taken at the bottom edge or in the bottom part of the bull's-eye, and at 50 yards in the center or in the upper part of the bull's-eye.

525. Grasp the stock of the pistol as high up as you can, so that the barrel, hand, and arm are as nearly as possible in one straight line. The thumb should be extended along the upper part of the frame. The second joint of the forefinger should be on the trigger.

526. Start with a light grip and gradually squeeze with the whole hand, the trigger finger squeezing gradually back as the grip is tightened, and continue squeezing without a jerk until the pistol fires. Decide to call the hold and to keep the right eye open.

527. If the hits are bunched to one side, they can be moved to the right by increasing the pressure of the thumb against the left side of the pistol or to the left by decreasing the pressure.

528. Snapping—that is, aiming and squeezing the trigger with the pistol not loaded—is most valuable practice. No man should load and fire until he has snapped several times to get acquainted with the trigger pull of the pistol. Expert pistol shots do a great deal of snapping instead of a great deal of firing. Steady holding can be acquired only by much snapping practice.

529. *Positions.*—In the prone position the right elbow has excellent support on the ground. In the kneeling position the firer may kneel on either knee. Kneeling on the left knee affords an excellent rest on the right knee for the elbow. In the squatting position both elbows rest on the knees. In the standing position face the target squarely or nearly so. Stand upright, not craning the head forward, and extend the arm to its full stretch.

NOTES ON THE CLEANING AND CARE OF RIFLES.

530. The following is quoted from Ordnance Department, United States Army, pamphlet No. 1917, Description and Rules for the Management of the United States Rifle, caliber .30, model of 1917:

"CLEANING THE RIFLE.

"The proper care of the bore requires conscientious, careful work, but it pays well in reduced labor of cleaning and in prolonged accuracy life of the barrel, and better results in target practice. Briefly stated, the care of the bore consists in removing the fouling resulting from firing, to obtain a chemically clean surface, and coating this surface with a film of oil to prevent rusting. The fouling which results from firing is of two kinds—one, the products of combustion of the powder; the other, cupro-nickel scraped off (under the abrading action of irregularities or grit in the bore). Powder fouling, because of its acid reaction, is highly corrosive; that is, it will induce rust and must be removed. Metal fouling of itself is inactive, but may cover powder fouling and prevent the action of cleaning agents until removed, and when accumulated in noticeable quantities it reduces the accuracy of the rifle.

"Powder fouling may be readily removed by scrubbing with hot soda solution, but this solution has no effect on the metal fouling of cupro-nickel. It is therefore necessary to remove all metal fouling before assurance can be had that all powder fouling has been removed and that the bore may be safely oiled. Normally, after firing a barrel in good condition, the metal fouling is so slight as to be hardly perceptible. It is merely a smear of infinitesimal thickness, easily removed by solvents of cupro-nickel. However, due to pitting, the presence of dust, other abrasives, or to accumulation, metal fouling may occur, in clearly visible flakes or patches of much greater thickness, much more difficult to remove.

"In cleaning the bore after firing, it is well to proceed as follows: Swab out the bore with soda solution (see below) to remove powder fouling. A convenient method is to insert the muzzle of the rifle into the can containing the soda solution and, with the cleaning rod inserted from the breech, pump the barrel full a few times. Remove and dry with a couple of patches. Examine the bore to see that there are in evidence no patches of metal fouling which, if present, can be readily detected by the naked eye, then swab out

with the swabbing solution—a dilute metal-fouling solution. (See below.) The amount of swabbing required with the swabbing solution can be determined only by experience and by observation of the color of the patches. Swabbing should be continued as long as the wiping patch is discolored by a bluish-green stain. Normally a couple of minutes' work is sufficient. Dry thoroughly and oil.

"The proper method of oiling a barrel is as follows: Wipe the cleaning rod dry; select a clean patch and thoroughly saturate it with sperm oil or warmed cosmic, being sure that the cosmic has penetrated the patch; scrub the bore with the patch, finally drawing the patch smoothly from the muzzle to the breech, allowing the cleaning rod to turn with the rifling. The bore will be found now to be smooth and bright, so that any subsequent rust and sweating can be easily detected by inspection.

"If patches of metal fouling are seen upon visual inspection of the bore, the standard metal-fouling solution prepared as hereinafter prescribed must be used. After scrubbing out with the soda solution plug the bore at the breech with a cork at the front end of the chamber, or where the rifling begins. Slip a 2-inch section of rubber hose over the muzzle down to the sight and fill with the standard solution to at least one-half inch above the muzzle of the barrel. Let it stand for 30 minutes, pour out the standard solution, remove hose and breech plug, and swab out thoroughly with soda solution to neutralize and remove all trace of ammonia and powder fouling. Wipe the barrel clean, dry and oil. With few exceptions, one application is sufficient, but if all fouling is not removed, as determined by careful visual inspection of the bore and of the wiping patches, repeat as described above.

"After properly cleaning with either the swabbing solution or the standard solution, as has just been described, the bore should be clean and safe to oil and put away, but as a measure of safety a patch should *always* be run through the bore on the next day and the bore and wiping patch examined, to insure that cleaning has been properly accomplished. The bore should then be oiled, as described above.

"If the swabbing solution or the standard metal-fouling solution is not available, the barrel should be scrubbed, as already described, with the soda solution, dried and oiled with a light oil. At the end of 24 hours it should again be cleaned, when it will usually be found to have 'sweated'; that is, rust having formed under the smear of metal fouling where powder fouling was present, the surface is puffed

up. Usually a second cleaning is sufficient, but to insure safety it should be again examined at the end of a few days before final oiling. The swabbing solution should always be used, if available, for it must be remembered that each puff when the bore 'sweats' is an incipient rust pit.

"A clean, dry surface having been obtained, to prevent rust it is necessary to coat every portion of this surface with a film of neutral oil. If the protection required is but temporary and the arm is to be cleaned or fired in a few days, a sperm oil may be used. This is easily applied and easily removed, but has not sufficient body to hold its surface for more than a few days. If rifles are to be prepared for storage or shipment, a heavier oil, such as cosmic, must be used.

"In preparing arms for storage or shipment they should be cleaned with particular care, using the metal-fouling solution as described above. Care should be taken, insured by careful inspection on succeeding day or days, that the cleaning is properly done and all traces of ammonia solution removed. The bore is then ready to be coated with cosmic. At ordinary temperatures cosmic is not fluid. In order, therefore, to insure that every part of the surface is coated with a film of oil, the cosmic should be warmed. Apply the cosmic first with a brush; then, with the breech plugged, fill the barrel to the muzzle, pour out the surplus, remove the plug, and allow to drain. It is believed that more rifles are ruined by improper preparation for storage than from any other cause. If the bore is not clean when oiled—that is, if powder fouling is present or rust has started—a half inch of cosmic on the outside will not stop its action and the barrel will be ruined. Remember that the surface must be perfectly cleaned before the heavy oil is applied. If the instructions as given above are carefully followed arms may be stored for years without harm.

PREPARATION OF SOLUTIONS.

"*Soda solution.*—This should be a saturated solution of sal soda (carbonate of soda). A strength of at least 20 per cent is necessary. The spoon referred to in the following directions is the model of 1910 spoon issued in the mess outfit.

"Sal soda, one-fourth pound, or 4 heaping spoonfuls; water, 1 pint or cup, model of 1910, to upper rivets. The sal soda will dissolve more readily in hot water.

"*Swabbing solution.*—Ammonium persulphate, 60 grains, one-half spoonful smoothed off; ammonia, 28 per cent, 6 ounces, or three-eighths of a pint, or 12 spoonfuls; water, 4 ounces, or one-fourth pint, or 8 spoonfuls. Dissolve the ammonium persulphate

in the water and add the ammonia. Keep in tightly corked bottle; pour out only what is necessary at the time, and keep the bottle corked.

"*Standard metal-fouling solution.*—Ammonium persulphate, 1 ounce, or 2 medium heaping spoonfuls; ammonium carbonate, 200 grains; ammonia, 28 per cent, 6 ounces, or three-eighths pint, or 12 spoonfuls; water, 4 ounces, or one-fourth pint, or 8 spoonfuls. Powder the persulphate and carbonate together, dissolve in the water, and add the ammonia; mix thoroughly and allow to stand for one hour before using. It should be kept in a strong bottle, tightly corked. The solution should not be used more than twice, and used solution should not be mixed with unused solution, but should be bottled separately. The solution, when mixed, should be used within 30 days. Care should be used in mixing and using this solution to prevent injury to the rifle. The ammonia solution should not be used in a warm barrel. An experienced noncommissioned officer should mix the solution and superintend its use.

"Neither of these ammonia solutions has any appreciable action on steel when not exposed to the air, but if allowed to evaporate on steel they attack it rapidly. Care should, therefore, be taken that none spills on the mechanism and that the barrel is washed out promptly with soda solution. The first application of soda solution removes the greater portion of the powder fouling and permits a more effective and economical use of the ammonia solution. These ammonia solutions are expensive and should be used economically.

"It is a fact recognized by all that a highly polished steel surface rusts much less easily than one which is roughened; also, that a barrel which is pitted fouls much more rapidly than one which is smooth. Every effort, therefore, should be made to prevent the formation of pits, which are merely enlarged rust spots, and which not only affect the accuracy of the arm but increase the labor of cleaning.

"The chambers of rifles are frequently neglected because they are not readily inspected. Care should be taken to see that they are cleaned as thoroughly as the bore. A roughened chamber delays greatly the rapidity of fire and not infrequently causes shells to stick.

"A cleaning rack should be provided for every barracks. Rifles should always be cleaned from the breech, thus avoiding possible injury to the rifling at the muzzle which would affect the shooting adversely. If the bore for a length of 6 inches at the muzzle is perfect, a minor injury near the chamber will have little effect on

the accuracy of the rifle. The rifle should be cleaned as soon as the firing for the day is completed. The fouling is easier to remove then, and if left longer it will corrode the barrel.

"If gas escapes at the base of the cartridge, it will probably enter the well of the bolt through the striker hole. In this case the bolt mechanism must be dismounted and the parts and well of the bolt thoroughly cleaned.

"Before assembling the bolt mechanism the firing pin, the barrel of the sleeve, the body of striker, the well of bolt, and all cams should be lightly oiled.

"Many of the parts can generally be cleaned with dry rags. All parts after cleaning should be wiped with an oiled rag.

"The best method of applying oil is to rub with a piece of cotton cloth upon which a few drops of oil have been placed, thereby avoiding the use of an unnecessary amount of oil; this method will, even in the absence of the oiler, serve for the cams and bearings, which should be kept continually oiled.

"Any part that may appear to move hard can generally be freed by the use of a little oil.

"The stock and hand guard may be coated with raw linseed oil and polished by rubbing with the hand.

"Sperm oil should be used only for lubricating metallic bearing and contact surfaces.

"For the chamber and bore only cosmoline or cosmic should be used. This should be applied also to all metallic surfaces, to prevent rusting when arms are stored or when not used for an appreciable length of time."

The solutions for cleaning and removing metal fouling and for oiling barrels of rifles mentioned above are made in quantities for cleaning a large number of rifles. The soda solution can be prepared at Coast Guard stations, as sal soda is readily obtained in suitable quantities. In lieu of the "swabbing solution" and "standard metal fouling solution" the Coast Guard has found that "3-in-1" oil serves the purpose of these two solutions and is more economical for cleaning a small number of rifles, such as is found at Coast Guard stations.

NOTES ON INFANTRY DRILL.

531. In the Landing-Force Manual, United States Navy, 1918, infantry drill and tactics have been brought into accord with the Infantry Drill Regulations, United States Army; and the infantry organization has been changed to correspond with that of the Army.

532. The following abbreviations are used for officers and petty officers. The corresponding officer or noncommissioned officer in the Army organization is also given:

C. C.....Company commander.
pt. c.....Platoon commander (officer or warrant officer).
pt. l.....Platoon leader (petty or noncommissioned officer in charge of a platoon).
c. p. o.....Chief petty officer (first sergeant).
1 p. o.....First petty officer (sergeant).
2 p. o.....Second petty officer (corporal).
p. o.....Petty officer (noncommissioned officer).
1 p. os.....Act as guides.
2 p. os.....Act as squad leaders, or as guides in absence of 1 p. os.

533. The terms chief petty officer, first petty officer, and second petty officer as used in the infantry organization should not be confused with those designations as used in the Coast Guard Regulations. In the infantry formations the terms mean as follows:

Chief petty officer: A petty officer (normally a chief petty officer or a petty officer, first class) who performs the duties of a first sergeant of a company.

First petty officer: A petty officer (normally a petty officer, first or second class) who performs the duties of a sergeant.

Second petty officer: A petty officer (normally a petty officer, second or third class) who performs the duties of a corporal.

In the absence of petty officers, nonrated men may act as first petty officer or second petty officer in the infantry organization.

534. (1) The distance between ranks is 40 inches in both line and column. Distance is measured from the back of the man in front to the breast of the man in rear.

(2) The interval between men in ranks is 4 inches and is measured from elbow to elbow.

(3) Pace: Thirty inches; the length of the full step in quick time.

Question. Of what does a squad consist?

Answer. A 2 p. o. and 7 men. When the squad is in ranks the 2 p. o. is posted as the left man in the front rank of the squad.

Question. How many squads in a platoon?

Answer. Not less than 2 nor more than 4 squads.

Question. What is meant by the expression "a platoon in line"?

Answer. A platoon formed in two ranks.

Question. What are the positions of the platoon commander and the petty officers, platoon in line?

Answer.

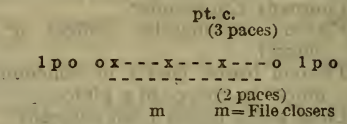

FIG. 1.—Platoon in line.

(The above platoon consists of three squads.)

(1) Platoon commander three paces in front of the center of the platoon.

(2) A first petty officer is in the front rank on the right of the platoon. He is the right guide of the platoon.

(3) A first petty officer is in the front rank on the left of the platoon. He is the left guide of the platoon (this 1 p. o. is dispensed with when the platoon is acting as a part of a company).

(4) Men in the position two paces in rear of the platoon are known as file closers. Musicians, signalmen, and odd men are placed with the file closers.

In the above case the platoon is considered as a unit acting singly, in which case it has two 1 p. os., one to act as right guide and one to act as left guide. When platoons are acting together as a part of a company only one 1 p. o. normally is assigned to a platoon.

Question. What is meant by the expression "a platoon in column of squads"?

Answer. A platoon with the squads placed one behind the other.

Question. What are the stations of the platoon commander and the petty officers in platoon in column of squads?

Answer.

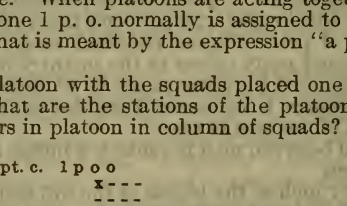

FIG. 2.—Platoon in column of squads.

(The above platoon consists of three squads.)

(1) Platoon commander alongside and outside the first petty officer.

(2) A 1 p. o. normally 40 inches ahead of the left man of the first squad.

(3) A 1 p. o. normally 40 inches behind the left man of the third squad (this 1 p. o. is dispensed with when the platoon is acting as a part of a company).

(4) Men in position to the right of the platoon are known as file closers. Musicians, signalmen, and odd men are placed in the file closers.

NOTE.—In this formation the first petty officer is known as the guide. In the normal formation, the guide is left. The men in the left file are responsible for the proper distance from the men ahead of them and all other men keep their positions with reference to men on their left. The guide may be right, in which case the platoon commander, the guides, and the file closers cross over to the opposite side to those shown in the diagram. (In column of squads each rank preserves the alignment toward the side of the guide.)

Question. What is meant by a company in line?

Answer. A company formed in two ranks.

Question. What are the positions of the company commander, platoon commanders, and petty officers in a company in line?

Answer.

FIG. 3.—Company in line.

(The above company consists of four platoons of four squads each.)

(1) The post of the company commander is three paces in front of the center of the company.

(2) The posts of the platoon commanders of the right and the left platoons are two paces in rear of the company, one on each flank. The posts of the leaders of the center platoons are two paces in rear of their platoons.

(3) The first petty officer of the first platoon is the right guide of the company.

The first petty officer of the left platoon is the left guide of the company.

The first petty officers of the center platoons are two paces in rear of their platoons to the left of the platoon leaders.

Question. What are the positions of the company commander, platoon commanders, and petty officers in company in column of squads?

Answer.

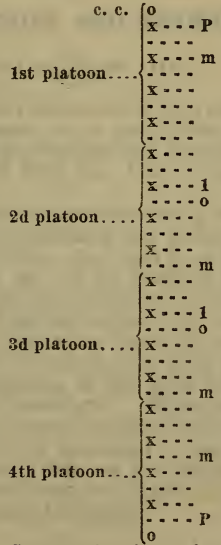

FIG. 4.—Company in column of squads.
(The above company consists of four platoons of four squads each.)

Question. What is the Infantry organization?

Answer. (1) A squad consists of seven men and a second petty officer.

(2) A platoon consists of two,three, or four squads.

(3) A company consists of two, three, or four platoons.

(4) A battalion consists of two or more, not exceeding six, companies.

(5) A regiment consists of two, three, or four battalions.

(6) A brigade consists of two or more regiments.

APPENDIX.

TREASURY DEPARTMENT,
Washington, August 3, 1922.

The questions and answers contained in the appendix are for the purpose of assisting the district superintendents and officers in charge in the instruction of the crews of Coast Guard stations.

EDWARD CLIFFORD,
Assistant Secretary.

QUESTIONS AND ANSWERS.

BOATS UNDER OARS.

Question. What general rules govern a good oarsman?

Answer. A good oarsman in a well-drilled crew sits erect on his thwart, feet together on his stretcher, hands together on handle, with backs up, oar level with rail, blade trimmed with blade of stroke oar.

At "Give way together" the *first motion* is to lean well forward, keep back straight, shove both arms out perfectly straight in front, point blade forward and down, and turn it so that as it is about to enter the water the flat part of the blade is perpendicular. *The second motion:* With feet on stretcher, eyes looking straight aft (not watching blade), keep arms perfectly rigid, and lean back beyond the vertical. Always lay back on your oar and pull it through the water. *Do not attempt to pull with the arms alone,* but always bring the muscles of the back into play. *The third motion* is known as the "recovery." When leaning back beyond the vertical, by bending the arms quickly, the blade is pulled through the water and a sudden force is applied to the oar; this is the most efficient part of the stroke. The oar is withdrawn from the water, and the wrists are dropped until the blade is parallel to the water. Take the next stroke without stopping.

Question. What are the general rules for boats' crews?

Answer. (1) When the boat is called away move on the *run*, and man the boat as soon as possible. (2) Always pull a good strong stroke and pay strict attention to orders. Paddling and slouchiness in a station boat shall not be permitted. (3) Never stand up in a boat if it can be avoided. (4) The crew of a boat shall always be in uniform and clean. (5) Never engage in conversation in a boat during drills or in performance of duty. (6) Always get into a boat ahead of an officer, and leave it after him unless he gives orders to the contrary. If you are a passenger, always rise and salute when an officer enters or leaves a boat in which you are seated.

Question. What precautions should be taken in going into a crowded landing?

Answer. The boat should be pulled easily, kept under control with oars as long as possible, laying on oars if necessary, and boating them only at the last minute.

Question. What precautions are necessary in going through a narrow entrance?

Answer. Get good way on the boat, then trail or toss the oars.

Question. What precautions are necessary in pulling across the current?

Answer. Try to get a range on two objects in line, and steer by these to keep from being set down by the current.

Question. Which holds her way longer, a loaded or a light boat?

Answer. A loaded boat.

Question. What is the best thing to do when you have a long pull against the tide?

Answer. Run inshore where the tide is slacker than it is in midstream and where there is sometimes an eddy.

Question. What about carrying a lantern?

Answer. Always see that there is a lantern, filled and trimmed, in the boat. If the lantern is not provided with a shutter, it shall be fitted with a canvas screen. When lighted and not in use the lantern shall be kept so that it will not get adrift or capsize.

Question. What precautions must be taken regarding going alongside?

Answer. Never go alongside a vessel that has sternboard, or which is backing her engines. In going alongside in a seaway or when a strong tide is running warn the bowmen to look out for the boat line which should be hove from the vessel.

Question. How would you run a line with a pulling boat?

Answer. Coil most of the line in the stern sheets, but take end enough in the bow to make fast when you reach the required place. Pull away and let the vessel pay out more line until you are sure of having enough in the boat to reach the place, then pay out from the boat. If laying out with the tide, take less line in the boat than otherwise. If against the tide, and if practicable, take all the line in the boat, pull up and make fast, then bring end to ship. With a long line to be laid out in a strong current, it will usually be necessary to have several boats, one to run away with the end, the others to underrun the line at intervals, floating it and pulling against the current with the bight. If the end is to be secured to a bollard, put a bowline in the end before starting and throw this over the bollard. Bend on a heaving line and let one of the bow oarsmen throw this, if hands are standing by to receive it, or jump ashore with it himself if necessary.

BOAT SAILING.

Question. What is meant by the trim of a boat?

Answer. The way she sits in the water. She is said to trim by the head or by the stern, according as to whether she is deeper in the water forward or aft.

Question. What effect does the position of weights have in sailing a boat?

Answer. If most of the weight is forward, she will trim by the head. In this case her stern is light and not deep in the water; consequently, the stern will tend to go off to leeward, throwing her head up into the wind. She will need weather tiller to keep her by the wind. Similarly, if weights are well aft her stern will be deep in the water and her bow light. The wind will blow the bow off, the boat will tend to fall off, and it will require more lee tiller to keep her by the wind.

Question. What is meant by, "By the wind"?

Answer. A boat is on, or by, the wind when she is sailing as close to the wind as she can and still keep good headway.

Question. What is meant by weather tiller and by lee tiller?

Answer. Weather tiller: When the tiller, looking forward, points to the weather side. Lee tiller is just the opposite.

Question. What do you mean by the weather side?

Answer. Side toward the wind; that on which the wind first strikes. The lee side is the side away from the wind.

Question. What is the tiller?

Answer. The bar fitted fore and aft in the rudderhead, by means of which the rudder is moved.

Question. What is tacking?

Answer. When a boat is close-hauled on one tack, by putting the tiller down and letting go the head sheets, she is brought up head to wind; then by properly working the sails she is made to fall off on the other tack. This is tacking. The head goes through the wind.

Question. What is the object of tacking?

Answer. To work a boat to windward.

Question. What is meant by putting a tiller down?

Answer. Putting the tiller over to the lee side.

Question. What is meant by putting the tiller up?

Answer. Putting the tiller over to the weather side.

Question. What is meant by wearing?

Answer. Getting a boat on the opposite tack by putting the tiller up, running off from the wind and gradually bringing her to the wind on the other tack. The head goes away from the wind; the stern goes through the wind.

Question. Which is the better method of working to windward, tacking or wearing?

Answer. Tacking, because if properly performed the boat will lose nothing to leeward. On the contrary, she will head reach and gain. That is, she will while in stays (while in process of tacking) run several boats' lengths to windward. In wearing, on the contrary, as a boat is run to leeward a part of the time, much distance is lost. The only advantage of wearing lies in the fact that there is always possibility of failure in tacking, and greater certainty about wearing.

Question. What is "leeway"?

Answer. The drift a boat makes away from the wind when close-hauled.

Question. What is meant by "heaving to"?

Answer Bringing a boat's head to the wind, and so adjusting her sails that she will make no headway through the water.

Question. What is "gybing"?

Answer. A boat gybes when the wind shifts around the stern, causing the main boom to fly over rapidly from one side to the other.

Question. Is it ever safe to gybe?

Answer. Only in moderate breezes. If the breeze is fresh, lower the mainsail before letting the wind shift from one quarter to the other.

Question. What is meant by "luffing"?

Answer. Putting tiller down, throwing boat up into the wind.

Question. When is it time to reef?

Answer. When a boat begins to take in water over the lee rail. Never be afraid of reefing too soon.

Question. What is meant by "wing and wing"?

Answer. When a boat, sailing before the wind, rigs foresail out on opposite side from mainsail she is sailing wing and wing.

Question. Is this safe?

Answer. Yes; in moderate weather.

Question. If it is found necessary to carry ballast in a station's boat, what should it be?

Answer. Always water in breakers. Never carry sinking ballast; that is, ballast heavier than water. Boats fitted with water-ballast tanks need no other ballast when the tanks are filled. Stow weights as low as possible.

Question. What are the general instructions regarding trim?

Answer. To do her best under sail a boat must be trimmed according to her build and rig. If she carries much head sail she will have to be deeper forward than would otherwise be desirable. If she has little or no head sail she would trim by the stern. Weights should be kept out of the ends of the boats. Too much weather tiller can be corrected by shifting weights aft; too much lee tiller by shifting them forward.

Question. What precautions should be observed in handling sheets?

Answer. Never belay a sheet in any weather. In a moderate squall the boat should be luffed sufficiently to shake without spilling the sails, thus keeping headway enough to retain control, but with the sheets in hand (as always). If it becomes stronger luff more decidedly and slack sheet. The sheet may, of course, be let go, and in a sudden emergency this must be done at once, in addition to putting the tiller down, and, if necessary, reducing sail. But the longer you can keep the boat under control the better, and to let go the sheets is to give up control. The above instructions are for use when *on the wind*.

In running free different instructions hold good. Here the sail can not be spilled by a touch of the tiller; consequently, slack the sheet while luffing. The force of the wind would be reduced by running off, but if it becomes too strong you can do nothing but lower the sail, and the chances are that it will bind against the shrouds and refuse to come down. There is also danger that the wind will shift in a squall causing the mainsail to gybe with violence.

Handling Motor Boats.

Question. What study should an officer in charge make concerning the handling of motor boats at his station?

Answer. He should make a special study of his boat with a view of getting perfectly familiar with her. He should learn by practice the turning circle and the effect of the screw under different conditions. He should inform himself of the amount of gasoline required to run a given distance at ordinary speed under usual conditions.

Question. What is the effect of the screw in steering?

Answer. Generally speaking, a right-handed screw when going ahead tends to throw the stern to starboard; when backing, to port. In other words, the stern is dragged around in the direction the propeller is turning, and this effect is noticed whether the boat itself has begun to answer the motion of the propeller or not. In attempting to turn a power boat the rudder should be shifted when the propeller is shifted instead of waiting for the boat to lose its headway, for the rudder has the same general effect on the steering of the boat when the propeller is backing, whether the boat itself is moving astern or has not yet lost its headway and is still forging ahead. This rule is not strictly applicable to all boats, but it is a good general rule for boats with a single, right-handed screw.

Question. How would you make a landing with a motor boat?

Answer. Make landings with slow speed. In making a landing it is a common mistake to keep too much headway on and to rely upon backing the engine full speed to stop the boat. This is poor seamanship, as the engines may fail to back promptly, causing a collision or smash up, and if they do back hard it throws unnecessary strain on them.

Question. How would you make a landing alongside of a ship in a strong current?

Answer. Do not let the current catch the boat on the outward bow, as this might sweep her with force against the ship's side or gangway. The painter or a line from the ship may be used, the boat being kept off a little from the side until it is fast, and then sheered in by the rudder. A boat may lie alongside safely in a strong current with a line from the inner bow and the rudder slightly over for sheering out.

Question. How should a motor boat be trimmed for towing?

Answer. In towing, the stern of the towing boat should be kept well down by shifting weights aft if necessary. This keeps the propeller well immersed and gives it a good hold on the water.

Question. What precautions should be taken when running in a seaway?

Answer. When running in a seaway speed should be reduced somewhat, not only to avoid shipping seas but to reduce the strain on the machinery due to the racing of the screw. In running into a sea it is possible by careful nursing to make fair speed, watching the seas and slowing or even stopping for a moment as heavy seas are seen bearing down on the boat. If the man who is running the engine has sufficient experience to regulate the speed in this manner it is convenient to leave this to him if he can see ahead. If running more or less across the sea it is well to head up momentarily for a heavy wave.

TOWING.

Question. Towing an unladen boat in a smooth sea, what precautions should be taken by the towing boat and tow?

Answer. Towing boat passes clear of oars of the tow, places herself in line ahead, receives painter from tow, secures it to ringbolt in sternpost, and starts slowly ahead as soon as she has hold of the painter. Bowman in the tow does not give towing boat his painter until she is about ahead. He then takes in slack towline, *keeping a strain on it*, and *gradually* pays it out, thus getting way on the tow gradually and avoiding too sudden a strain on the towline or stem of the boat.

Question. What precautions are taken in case the tow is heavily laden or the sea rough?

Answer. Toggle the painter to a stretcher between the two after thwarts of the towing boat and to the forward thwart of the tow. To steer, bear towline over on the quarter toward which you want to turn, for the rudder will be of little use.

Question. Give precautions when carrying stores.

Answer. Be careful of the oars, as they may easily be injured by letting stores fall on them. Keep all casks hung up and have tarpaulins for covering articles that might be injured by water. While loading bear in mind any rough water that you may encounter. Do not overload a boat; you may capsize or be responsible for loss of life. When carrying treasure always attach a buoy with a drift of the line at least equal to the greatest depth of water on the way back to the station.

Question. How would you tow astern of a large vessel?

Answer. When being towed astern of a large vessel, use a short scope, so as to remain close under the counter, with the bow partly out of water. In casting off, when there are other boats towing astern, be careful before letting go either to drop clear of them all with your towline or be handy with your oars to avoid getting athwart the hawse of any of them. When towing astern the towline should never be made fast, but should always be tended.

Question. How would you tow alongside of a vessel?

Answer. If towing alongside, have the towline from as far forward on the towing vessel as possible; either toggle it to the forward thwart (steadying it over the stem with a bight of the painter), or pass it through the forward rowlock on the side nearest the towing vessel. Pay particular attention to the steering.

Question. What precautions must be taken for the management of a boat in tow?

Answer. A boat should never be towed without the crew being in her, or at least a sufficient number of men to manage her in the event of her breaking adrift or being compelled to cast off from the towing vessel.

Question. When would you use a drogue in being towed?

Answer. A drogue is found of great advantage when being towed before a heavy sea, as it prevents the boat running ahead in front of a sea at risk of damage against the towing vessel and keeps a more equable strain on the towline.

Mariner's Compass.

Question. What is a compass?

Answer. An instrument by which a ship or boat may be steered on a given course or by which bearings of an object may be taken.

Question. Describe the wet or liquid compass.

Answer. Briefly, it is a magnetic needle or several parallel magnetic needles attached to a compass card, so fitted as to turn easily on a pivot in the compass bowl. The bowl is filled with liquid to keep the card from wabbling or moving too quickly. The liquid contains 55 per cent distilled water and 45 per cent denatured alcohol to prevent freezing. The whole is held in a composition case called the binnacle.

Question. How is the compass card graduated?

Answer. In points, half points, quarter points, and degrees.

Question. How many points are there in each quadrant or quarter of the compass card?

Answer. Eight.

Question. How many points are there in the whole compass card?

Answer. Thirty-two.

Question. Name the cardinal points of the compass.

Answer. North, south, east, and west.

Question. Name the semicardinal points of the compass.

Answer. Northeast, southeast, southwest, and northwest. These are halfway between the cardinal points.

Question. What are the eight principal points of the compass?

Answer. The four cardinal points and the four semicardinal points.

Question. How are the points halfway between the cardinal and semicardinal points named?

Answer. The point halfway between north and northeast is named north-northeast; the point halfway between north and northwest is named north-northwest; halfway between east and northeast is named east-northeast; halfway between east and southeast is named east-southeast, and so on.

Question. What is meant by "boxing the compass"?

Answer. By calling off the points of the compass in order.

Question. Box the compass.

Answer.—

North.	South.
North by east.	South by west.
North-northeast.	South-southwest.
Northeast by north.	Southwest by south.
Northeast.	Southwest.
Northeast by east.	Southwest by west.
East-northeast	West-southwest.
East by north.	West by south.
East.	West.
East by south.	West by north.
East-southeast.	West-northwest.
Southeast by east.	Northwest by west.
Southeast.	Northwest.
Southeast by south	Northwest by north
South-southeast.	North-northwest.
South by east.	North by west.

Question. Into how many degrees is a compass card divided?

Answer. Three hundred and sixty.

Question. How many degrees are there in a quadrant or quarter of a circle?

Answer. One-fourth of 360, or 90.

Question. How many points are there in 90° of the compass card?

Answer. Eight.

Question. How many degrees are there in one point of the compass?

Answer. One-eighth of 90°, or 11¼.

Question. What point of the compass corresponds with 180°?

Answer. South.

Question. What point corresponds with 45°?

Answer. Northeast.

Question. What point corresponds with 135°?

Answer. Southeast.

Question. What point corresponds with 225°?

Answer. Southwest.

Question. How many points is it from northeast to east by north?

Answer. Three.

Question. How many points is it from northwest by west to southwest by south?

Answer. Eight.

Question. What point of the compass is 5 points east of north?

Answer. Northeast by east.

Question. What point is 6 points to the west of south?

Answer. West-southwest.

Question. What is the opposite bearing to east by north?

Answer. West by south.

Question. What is the opposite bearing to west-northwest?

Answer. East-southeast.

(Questions similar to the above should be continued until perfect familiarity is obtained; there is no better way.)

Question. Does the north point of the compass always point to the true north; and if not, why?

Answer. It does not always point to the true north, because the compass needle is deflected by forces called variation and deviation.

Question. What is meant by the compass bearing of an object?

Answer. Its direction by compass without correction for variation or deviation.

Question. What is the lubber's point of a compass?

Answer. The vertical line on the inside of a compass bowl corresponding with the fore-and-aft line of the ship or boat.

Question. For what is it used?

Answer. In steering this line is made to coincide as nearly as possible with the given course.

Question. Where should a compass be placed in a station boat to secure the best results? Why?

Answer. As near the amidships fore-and-aft line and as far away from movable or fixed iron or steel as practicable. The iron or steel deflects the compass needle and may increase its error, so that it would be unreliable.

Question. What is a dumb compass?

Answer. A circle marked with the graduations of the compass card, but without a needle. It is used for taking bearings.

Question. How should it be fixed in a station?

Answer. It should be permanently fixed so that its north and south points coincide with the north and south points of the horizon.

Question. How is a dumb compass fitted for taking bearings?

Answer. It is fitted with a movable sighting bar pivoted at the center of the compass card.

Rules of the Road for Boats.

Question. What lights are required to be carried by rowboats?

Answer. Rowboats, whether under oars or sail, shall have ready at hand a lantern showing a white light, which shall be temporarily exhibited in time to prevent collision.

Question. What fog signals are required for a power boat underway on the inland waters of the Atlantic, Pacific, and Gulf coasts?

Answer. If underway and not towing or being towed it shall sound, at intervals of not more than one minute, on the whistle a prolonged blast. When towing other vessels it shall sound at intervals of not more than one minute three blasts in succession, namely, one prolonged blast followed by two short blasts. A boat towed may give, at intervals of not more than one minute, on the fog horn a signal of three blasts in succession, namely, one prolonged blast followed by two short blasts, and she shall not give any other. A boat when at anchor shall, at intervals of not more than one minute, ring the bell rapidly for about five seconds.

Question. When is a power boat underway within the meaning of the rules of the road?

Answer. When she is not anchored or made fast to the shore or to a ship or aground.

Question. What is the definition of a steam vessel by the rules of the road?

Answer. The words "steam vessel" shall include any vessel propelled by machinery.

Question. At what speed should vessels proceed in a fog, mist, falling snow, or a heavy rain squall?

Answer. They shall go at a moderate speed, having careful regard to the existing circumstances and conditions.

Question. What are the sailing rules when one boat is running free and another is close-hauled?

Answer. A boat which is running free shall keep out of the way of a boat which is close-hauled.

Question. Two boats are close-hauled on opposite tacks. Which shall keep out of the way of the other?

Answer. A boat which is close-hauled on the port tack shall keep out of the way of a boat which is close-hauled on the starboard tack.

Question. Two boats are running free with the wind on opposite sides. Which shall keep out of the way of the other?

Answer. The boat which has the wind on the port side shall keep out of the way of the other.

Question. Two boats are running free with the wind on the same side. Which shall keep out of the way of the other?

Answer. The boat which is to windward shall keep out of the way of the boat which is to leeward.

Question. Which has the right of way—a boat under sail with the wind aft, or any other boat?

Answer. A boat under sail which has the wind aft shall keep out of the way of any other boat under sail.

Question. What is the rule of the road about power boats or boats under oars meeting end-on or nearly end-on so as to involve risk of collision?

Answer. Each shall alter her course to starboard so that each may pass on the port side of the other.

Question. In the preceding question, suppose the course of each power boat is so far to starboard of the other that they are not to be considered as meeting end-on; what shall each do?

Answer. Either boat should immediately give two short blasts, which the other boat should answer promptly by two similar blasts, and they shall pass on the starboard side of each other.

Question. What is the rule for power boats or boats under oars crossing so as to involve risk of collision?

Answer. The boat which has the other on its own starboard side shall keep out of the way of the other.

Question. What is the rule for a power boat or a boat under oars meeting or crossing a boat under sail?

Answer. The boat under power or oars shall keep out of the way of the boat under sail.

Question. When, under the rules, one boat must keep out of the way, what shall the other do?

Answer. The other shall keep her course and speed.

Question. If a boat, whether under oars, sail, or power, is overtaking another boat, what shall the overtaking boat do?

Answer. The overtaking boat shall keep out of the way of the overtaken boat.

Question. What sound signals are used by power boats on approaching each other?

Answer. Any power boat approaching another shall indicate what course she intends to take by the following signals on her whistle:

(*a*) One short blast to mean, "I am directing my course to starboard."

(*b*) Two short blasts to mean, "I am directing my course to port."

(*c*) Three short blasts to mean, "My engines are going full speed astern."

Question. Do the signals in the preceding question also apply to a motor boat approaching a steam vessel?

Answer. They do.

Question. To which side of a fairway must a boat ordinarily be kept?

Answer. In a narrow channel every boat under power or oars shall, when it is safe or practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such boat.

Question. What signal is given on nearing a short turn or bend?

Answer. A long blast on the whistle.

Question. Suppose a long blast is answered by a similar blast from the far side of a bend, what should be done?

Answer. The usual signals for meeting and passing should then be given by both boats.

Question. When leaving the side of a long dock or proceeding out of a slip, what signal shall a power boat give?

Answer. It shall give the same signal as in the case of vessels meeting at a bend, but immediately after clearing the dock or slip, so as to be fully in sight, it shall be governed by the steering and sailing rules.

Question. When two power boats are meeting end-on, how does each steersman alter his course?

Answer. Each puts his helm to port so as to pass on the port side of the other.

Question. How is this altering of the course indicated?

Answer. Each steersman blows one short blast on the whistle.

Question. If, under the circumstances, the other blows one blast before you do, what should you do?

Answer. I would answer with one blast and put my helm to port.

Question. If you find it is not possible for her to pass on your port side, what should you do?

Answer. I should sound several short and rapid blasts, not less than four, of the whistle, and if the boats have approached each other within a short distance, I should reduce speed to bare steerageway, or if necessary stop or reverse.

Question. You are in charge of a power boat running in the same direction as a power boat ahead and wish to pass her on her starboard side, what should you do?

Answer. I would give one short blast of the whistle, and, if she answered with one short blast, I would port the helm and pass on her starboard side.

Question. Suppose you wish to pass on her port side?

Answer. I would give two short blasts, and, if she answered with two short blasts, I would starboard the helm and pass on her port side.

Question. Suppose in either case she gave several short blasts in answer, not less than four, what would you understand?

Answer. That she did not consider it safe for me to pass at that point.

Question. How long can she keep you trailing behind her?

Answer. Only so long as there is danger in passing, as in a narrow or obstructed channel or fairway. When there is sufficient room she must indicate on which side I may pass.

Question. What are cross signals?

Answer. Answering one blast with two, or two blasts with one.

Question. Are they ever permissible?

Answer. No

Question. What should you do in case another boat gives you a cross signal on meeting?

Answer. I should give several short and rapid blasts, not less than four, and if necessary stop and reverse.

Question. You are in charge of a power boat, a steam vessel is approaching on your port bow so as to involve risk of collision, which boat has the right of way and what should you do?

Answer. My boat has the right of way, and I would hold my course and speed.

Question. Suppose the other boat was on your starboard bow. what would you do?

Answer. The other boat would have the right of way, and I would reduce speed and go under her stern, or stop or reverse.

Question. Suppose the boat is overhauling you anywhere from two points abaft your beam to astern?

Answer. I would have the right of way and would hold my course and speed.

Question. Suppose it is a sailing vessel on your port bow, what would you do?

Answer. She would have the right of way, and I would alter my course to clear her or stop or reverse.

Question. Suppose a sailing vessel was coming up anywhere on your starboard quarter, close-hauled and on the starboard tack, which would have the right of way?

Answer. I would have the right of way.

Question. What is meant by close-hauled?

Answer. A vessel or boat is close-hauled when she is sailing as close as possible to the wind.

Question. What is meant by running free?

Answer. A boat is running free when she is able to lay her course with the sheets eased off.

Question. When are you justified in disregarding the rules of the road?

Answer. When the dangers of navigation, and collision, or any special circumstances may render a departure from the rules necessary in order to avoid immediate danger.

Question. What light would you use as an anchor light for a boat?

Answer. An ordinary hand lantern showing a white light.

Motor-Boat Laws.

Question. Under the law, what do the words "motor boat" mean?

Answer. They mean every vessel propelled by machinery and not more than 65 feet in length, except tugboats and towboats propelled by steam.

Question. How shall the length of a motor boat be determined?

Answer. By measuring from end to end over the deck, excluding sheer.

Question. Into how many classes are motor boats divided?

Answer. Into three classes.

Question. What motor boats are included in class 1?

Answer. Those less than 26 feet in length.

Question. What motor boats are included in class 2?

Answer. Those 26 feet or over and less than 40 feet in length.

Question. What motor boats are included in class 3?

Answer. Those of 40 feet or over and not more than 65 feet in length.

Question. What lights shall every motor boat of class 1 carry when underway from sunset to sunrise?

Answer. (1) A white light aft to show all around the horizon. (2) A combined lantern in the fore part of the vessel, and lower than the white light aft, showing green to starboard and red to port, so fixed as to throw the light from right ahead to 2 points abaft the beam on their respective sides.

Question. What lights shall motor boats of classes 2 and 3 carry when underway from sunset to sunrise?

Answer. (1) A bright white light, in the fore part of the vessel as near the stem as practicable, so constructed as to show an unbroken light over an arc of the horizon of 20 points of the compass, so fixed as to throw the light 10 points on each side of the boat, namely, from right ahead to 2 points abaft the beam on either side.

(2) A white light aft to show all around the horizon.

(3) On the starboard side a green light so constructed as to show an unbroken light over an arc of the horizon of 10 points of the compass, so fixed as to throw the light from right ahead to 2 points abaft the beam on the starboard side. On the port side a red light so constructed as to show an unbroken light over an arc of the horizon of 10 points of the compass, so fixed as to throw the light from right ahead to 2 points abaft the beam on the port side.

Question. What shall be the dimension of the glass or lens for the white light in the fore part of a motor boat of class 2?

Answer. Not less than 19 square inches.

Question. What shall be the dimension of the glass or lens for the white light in the fore part of a motor boat of class 3?

Answer. Not less than 31 square inches.

Question. What shall be the dimension of the glass or lens for the side lights of a motor boat of class 2?

Answer. Not less than 16 square inches.

Question. What shall be the dimension of the glass or lens for the side lights of a motor boat of class 3?

Answer. Not less than 25 square inches.

Question. What shall be the character of the glass or lens for lights on motor boats of classes 2 and 3?

Answer. They shall be fresnel or fluted glass.

Question. With what shall the side lights of classes 2 and 3 be fitted?

Answer. They shall be fitted with inboard screens of sufficient height and so set as to prevent these lights from being seen across the bow.

Question. What is the length of the side-light screens for boats of class 2?

Answer. Not less than 18 inches.

Question. What is the length of the side-light screens for boats of class 3?

Answer. Not less than 24 inches.

Question. What lights shall motor boats carry when propelled by sail and machinery, or by sail alone?

Answer. They shall carry the colored side lights suitably screened, but not the white lights.

Question. With what sound-producing appliance shall motor boats be provided?

Answer. With a whistle or other sound-producing mechanical appliance capable of producing a blast of two seconds or more in duration.

Question. What shall be deemed to be a prolonged blast within the meaning of the motor-boat law?

Answer. A blast of at least two seconds.

Question. What additional sound-producing appliances shall every motor boat of class 2 or 3 carry?

Answer. An efficient foghorn and an efficient bell.

Question. What shall be the size of the bell on class 3 motor boats?

Answer. It shall be not less than 8 inches across the mouth.

Question. What life-saving appliances shall every motor boat and every vessel propelled by machinery other than by steam, more than 65 feet in length, carry?

Answer. Either life preservers, or life belts, or buoyant cushions, or ring buoys, or other device sufficient to sustain afloat every person on board and so placed as to be readily accessible.

Question. What additional life-saving appliances shall be provided on all motor boats carrying passengers for hire?

Answer. They shall carry one life preserver for every passenger carried.

Question. What is required of the person operating a motor boat carrying passengers for hire?

Answer. He is required to be duly licensed for such service by the local board of inspectors.

Question. What are the requirements of law regarding fire-extinguishing appliances on motor boats?

Answer. Every motor boat, and also every vessel propelled by machinery other than by steam more than 65 feet in length, shall carry ready for immediate use the means of promptly and effectually extinguishing burning gasoline.

Question. What penalty may be imposed by proper authority for violation of any of the motor-boat laws?

Answer. A fine not exceeding $100.

Question. What light shall a vessel under 150 feet in length carry when at anchor?

Answer. It shall carry forward, where it can best be seen, but at a height not exceeding 20 feet above the hull, a white light in a lantern so constructed as to show a clear, uniform, and unbroken light visible all around the horizon at a distance of at least 1 mile.

Question. Are motor boats required to carry lights between the hours of sunrise and sunset?

Answer. No.

Question. What should be the position of the after light relative to the forward light in motar boats?

Answer. The after light should be higher and so placed as to form a range with the forward light and should be clear of house awnings and other obstructions.

Question. Does the law specify the size of the white light to be carried on motor boats of class 1?

Answer. No.

Question. What sound-producing appliance for motor boats has been held to be in compliance with the law?

Answer. A mouth whistle capable of producing a blast of two seconds or more in duration which can be heard for at least one-half a mile.

Question. Can foghorns take the place of whistles on motor boats of classes 2 and 3?

Answer. No.

Question. With what life-saving appliances shall every motor boat not carrying passengers for hire be provided?

Answer. With life preservers or life belts or buoyant cushions or ring buoys, or other device, sufficient to sustain afloat every person on board. This includes members of the crew, children, and babies.

Question. Whose approval shall life-saving appliances have?

Answer. The board of supervising inspectors of the Steamboat Inspection Service.

Question. What qualities shall life preservers and buoyant cushions possess?

Answer. They shall be capable of sustaining afloat for a continuous period of 24 hours an attached weight so arranged that whether the said weight be submerged or not there shall be a direct downward gravitation pull upon such life preserver or cushion of at least 20 pounds. If a buoyant cushion is furnished for more than one person, its capacity must be proportionately greater.

Question. Is a life preserver or buoyant cushion stuffed or filled with granulated cork or other loose granulated material permitted?

Answer. No.

Question. Are pneumatic life preservers or cushions permitted?

Answer. No.

Question. What substitutes for life preservers, life belts, etc., may be used?

Answer. Wooden life floats, provided their dimensions shall not be less than 4 feet in length, 14 inches in breadth, 2 inches in thickness, and of well-seasoned white pine, or of any other wood not exceeding white pine in weight per cubic foot.

Question. Would a motor boat hired at a launch livery and carrying a person in addition to the person operating it be considered as carrying passengers for hire?

Answer. Yes.

Question. Are there any specific means prescribed for promptly extinguishing burning gasoline?

Answer. No.

Question. What materials will serve the purpose of extinguishing burning gasoline?

Answer. Besides the usual extinguishers and suitable chemicals, salt or sand in sufficient quantities will serve the purpose in some cases. The salt or sand (preferably the two mixed) should be kept in a pail or receptacle.

Question. What motor boats are subject to inspection by the Steamboat Inspection Service?

Answer. Motor boats propelled otherwise than by steam of 15 gross tons, carrying freight or passengers for hire, but not engaged in fishing as a regular business.

Question. What motor boats must be documented?

Answer. All motor boats of over 5 net tons when engaged in trade must be documented; that is to say, must be licensed by collectors of customs.

Question. Are vessels under 5 net tons documented?

Answer. They are not documented in any case.

Question. What distinction is there between the license of a vessel and the license of a motor-boat operator?

Answer. The license of a vessel obtained from a collector of customs (designated a document) is additional to and must not be confounded with the license required for the operator of a motor boat.

Question. How must a documented vessel be marked?

Answer. She must have the name and home port on the stern and the name on each bow. The tonnage mark and official number should be deeply carved or otherwise permanently marked on her main beam or other approved place.

Question. Does the law require that the name of an undocumented motor boat be displayed?

Answer. No; but the Department of Commerce recommends that it be.

Question. Are motor boats required to have copies of pilot rules on board?

Answer. Yes; they are required to have on board two copies of the pilot rules to be observed by them.

Question. What equipment is required for motor boats of class 1 not carrying passengers for hire?

Answer. Combination light forward, white light aft, whistle, life preserver or life-saving devices for each person on board, means for extinguishing burning gasoline, two copies of pilot rules.

Question. What equipment is required for motor boats of class 1 carrying passengers for hire?

Answer. Combination light forward, white light aft, whistle, life preserver for each person on board, licensed operator, means for extinguishing burning gasoline, two copies of pilot rules.

Question. What equipment is required for motor boats of class 2 not carrying passengers for hire?

Answer. White lights forward and aft and colored side lights, whistle, bell, foghorn, life preserver or life-saving device for each person on board, means for extinguishing burning gasoline, two copies of pilot rules.

Question. What equipment is required for motor boats of class 2 carrying passengers for hire?

Answer. The same equipment as when not carrying passengers for hire, with the addition of a licensed operator, except that life preservers and not life-saving devices shall be carried.

Question. What equipment is required for motor boats of class 3 not carrying passengers for hire?

Answer. The same as required for class 2 when not carrying passengers for hire.

Question. What equipment is required for motor boats of class 3 carrying passengers for hire?

Answer. The same as is required for motor boats of class 2 carrying passengers for hire.

Question. What is the duration of the license granted the operator of a motor boat?

Answer. Five years.

Question. What equipment is required for a motor boat after sunset when not being navigated?

Answer. No equipment, except an anchor light.

Customs and Navigation Laws.

Question. What powers have officers in charge of Coast Guard stations and houses of refuge as customs officers?

Answer. They have the powers of inspectors of customs.

Question. Briefly, what are the powers of inspectors of customs?

Answer. (*a*) To go on board of vessels in any port of the United States or within 4 leagues of the coast thereof, if bound to the United States; to search the same and any person, trunk, or envelope on board, and to this end to hail or stop such vessel and use all necessary force to compel compliance.

(*b*) If it shall appear that a violation of law is committed whereby the vessel or the merchandise on board is liable to forfeiture, to seize the same. They may also arrest any person engaged in such violation.

Question. When are officers in charge of stations expected to use these powers?

Answer. Whenever the occasion demands. They are not, however, expected to board and examine vessels unless they have reason to believe such vessels are engaged in a violation of the customs or navigation laws.

Question. Who may make searches and seizures?

Answer. Officers of the customs or of the Coast Guard cutters, or authorized agents of the Treasury Department, or other persons specifically appointed for the purpose in writing by a collector of customs.

Question. What flag should a station boat on boarding duty carry?

Answer. A station boat on boarding duty in the enforcement of the customs or navigation laws shall carry the Coast Guard ensign at all times when it can be seen.

Question. What is the duty of an officer in charge of a station in regard to smuggling?

Answer. To take such measures as may be within his power to prevent smuggling, and upon detection of any violation of the customs revenue laws to forthwith report the same to the collector of the district and to seize merchandise in the act of being smuggled or which has been smuggled.

Question. May an officer in charge of a station search a vehicle on which he has reason to believe there is merchandise subject to duty or which shall have been introduced into the United States contrary to law?

Answer. Yes; he may stop, search, and examine the same and may search any trunk or envelope in which he has reasonable cause to suspect there is merchandise which was imported contrary to law, and such merchandise will be subject to seizure.

Question. What constitutes a valid seizure?

Answer. To constitute a valid seizure there must be open visible possession claimed and authority exercised by the seizing

officer. The parties must understand that they are dispossessed and that they are no longer at liberty to exercise any control over the property.

Question. Is it necessary that a superior physical force be employed?

Answer. It is not necessary if there is a voluntary acquiescence in the seizure and dispossession.

Question. Suppose there is voluntary abandonment of the seizure by the seizing officer?

Answer. In that case the seizure would lose its validity.

Question. What shall be done with seized goods?

Answer. Merchandise or property of any kind seized shall be placed and remain in the custody of the collector of the district in which the seizure is made, to await disposition according to law.

Question. Must a seizing officer make known his character?

Answer. Every officer or other person authorized to make searches and seizures shall make known, upon being questioned, his character as an officer or agent of the customs or Government.

Question. Has he authority to require other persons to assist him?

Answer. Yes; he may require any person within the distance of 3 miles to assist him in making any arrest, search, or seizure.

Question. Suppose such person shall without reasonable excuse neglect or refuse to assist the officer upon proper demand?

Answer. He will be guilty of a misdemeanor and be subject to a fine of not more than $200 nor less than $5.

Question. What is the penalty for resisting a revenue officer in the discharge of his duties or for rescuing or destroying seized property?

Answer. A fine of not more than $2,000 or imprisonment for not more than one year.

Question. May an officer in charge of a station enter buildings to make search or seizure?

Answer. He, and the persons assisting him, may if deemed necessary enter into or upon or pass over the lands, inclosures, and buildings, *other than the dwelling house*, of any person, but he should however, when practicable, first obtain a search warrant for the purpose, and always before searching a dwelling house.

Question. What is necessary before seizure is made?

Answer. That there shall be reasonable cause for it.

Question. How shall the term "smuggling" be construed?

Answer. It shall be construed to mean the act, with intent to defraud, of bringing into, or attempting to bring into the United States dutiable articles without passing the same or the packages containing the same through the custom house or submitting them to the officers of the revenue for examination.

Question. Are officers of the customs entitled to a fee as informer?

Answer. No. They are prohibited from either directly or indirectly receiving, accepting, or contracting for any portion of such fee.

Question. Under what penalty?

Answer. They are liable to a fine not exceeding $5,000 or to imprisonment for not more than one year, or both, and will be thereafter ineligible to any office of honor, trust, or emolument under the Government.

Question. What is the penalty for bribing or attempting to bribe a revenue officer or employee?

Answer. A fine not exceeding $2,000 or imprisonment at hard labor for not more than one year, or both.

Question. What is the penalty for assuming to be a revenue officer?

Answer. A fine of not more than $500 and imprisonment for not more than two years.

Question. What is the duty of the officer in charge with regard to vessels wrecked on the coast within the limits of his station?

Answer. To promptly notify the nearest collector or deputy collector of customs of the shipwreck or of any merchandise presumably of foreign origin cast ashore from the wrecks or forming the cargo of vessels stranded or driven ashore by stress of weather.

Question. What else?

Answer. If the merchandise is presumably of foreign origin, he should exercise supervision over it until a regular customs officer arrives to take necessary action toward forwarding it to its destination or to the nearest port of entry that may be determined upon by the owner or underwriters.

Question. Suppose the merchandise or cargo is not of foreign origin?

Answer. He should exercise supervision over it until the owner or underwriters have been consulted as to its disposition.

Question. What is the ordinary presumption regarding derelict or wrecked merchandise?

Answer. Merchandise picked up at sea derelict or taken from a wreck is prima facie dutiable, and should be so regarded until

the matter is passed upon by the proper customs officers, whether it is claimed to be of American origin or not.

Question. What rights have salvors in such goods?

Answer. They have an uncertain interest in them depending upon the decree of a competent tribunal. They have also a presumptive right to possession of merchandise saved by them from abandoned wrecks, but their possession of them must be reported to the collector of customs.

Question. Is it lawful for a vessel to transfer its cargo, or any part thereof, into another vessel in the open sea within 4 leagues of the coast of the United States?

Answer. No. It is unlawful, except in case of accident, necessity, or distress, which must be proved in the manner prescribed by law.

Question. What action should you take in any such case coming under your observation?

Answer. I should at once investigate the matter and report all the facts, together with the names of the vessels involved, to the collector of customs by the quickest available means.

Question. In what case would the merchandise so transferred be subject to forfeiture?

Answer. In case the vessel from which it is transferred was bound to the United States from a foreign port. The vessel into which it is transferred would also be liable to forfeiture.

Question. Where is it unlawful for a vessel to unlade its cargo?

Answer. It is unlawful for any vessel to unlade its cargo, or any part thereof, elsewhere than at a port of entry or port designated as a customs station to which it is destined without special permission from the collector of customs.

Question. Is it lawful for a foreign vessel to transport merchandise or passengers from port to port in the United States?

Answer. No; but she may proceed from one domestic port to another for the purpose of unlading her foreign cargo or to take on cargo for a foreign voyage.

Question. (*a*) Under what conditions are the equipment and ship's stores of a wrecked foreign vessel dutiable when brought into the United States?

(*b*) When are they free of duty?

Answer. (*a*) The equipment and ship's stores taken from a foreign vessel wrecked outside the waters of the United States are dutiable when brought into the United States.

(*b*) When a foreign vessel is wrecked in the waters of the United States the equipment and ship's stores recovered and brought into port are free of duty, as are also the materials and equipment of a foreign vessel condemned and dismantled in the United States.

Question. Is the importation of opium unlawful?

Answer. The importation of smoking opium or opium prepared for smoking is prohibited. The importation of opium in any other form or of preparations or derivatives thereof is prohibited except for medicinal purposes.

Question. What opium should be seized on discovery?

Answer. All smoking opium should be forthwith seized and also all other forms of opium not shown on the vessel's manifest.

Question. Is it unlawful to import intoxicating liquors into the United States?

Answer. Yes. The importation into or exportation from the United States of intoxicating liquors for beverage purposes is absolutely prohibited.

Question. Under what conditions may wines and liquors be imported into the United States?

Answer. Wines and liquors may be imported into the United States for nonbeverage purposes, if a permit for that purpose is obtained from the prohibition commissioner.

Question. May intoxicating liquors for beverage purposes be carried on board merchant vessels of the United States as sea stores; and if so, under what conditions?

Answer. Vessels engaged in the foreign trade may not carry intoxicating liquors for beverage purposes as sea stores.

Question. Are vessels engaged in the coasting trade permitted to carry intoxicating beverages?

Answer. No; unless they have a license for the purpose from the prohibition commissioner.

Question. Define the following terms as used in Customs Regulations of the United States: (*a*) Vessel; (*b*) vessels of the United States; (*c*) marine document.

Answer. (*a*) The word "vessel" includes every description of water craft or other artificial contrivance used or capable of being used as means of transportation on water.

(*b*) The term "vessels of the United States" applies to such only as are documented either by license or by enrollment or by certificate of registry.

(*c*) The term "marine document" relates either to a register, an enrollment, or a license.

Question. (*a*) What marine document may be issued to a vessel of 20 net tons and upward? (*b*) To a vessel of 5 net tons and less than 20 net tons?

Answer. (*a*) Vessels of 20 net tons and upward may be either registered or enrolled and licensed.

(*b*) Vessels of 5 net tons and less than 20 net tons can be licensed or registered.

Question. What marine document do vessels of the United States navigating the waters on the northern, northeastern, and northwestern frontiers otherwise than by sea require?

Answer. They require a special enrollment and license which permits them to be employed in either the coasting or the foreign trade on such frontiers.

Question. What vessels are not required to be documented?

Answer. Certain classes of boats, lighters, and barges.

Question. What barges, lighters, and other boats must be documented?

Answer. Barges, lighters, and other boats provided with sail or internal motive power, whether such power is generally used or not.

Barges and boats without sail or internal motive power of their own engaged in trade with Canada, or employed upon the marine waters of the United States.

Barges and boats without sail or internal motive power of their own carrying passengers.

Question. What vessels may engage in trade between port and port of the United States?

Answer. Vessels of the United States and certain classes of barges, lighters, and other boats which are exempt from documentation.

Question. (*a*) Where and how must the draft be marked on every registered vessel of the United States? (*b*) What indicates the draft to any line?

Answer. (*a*) The draft of every registered vessel shall be marked upon the stem and sternpost in English feet or decimeters in either Arabic or Roman numerals.

(*b*) The bottom of each numeral shall indicate the draft to that line.

Question. (*a*) Of what two descriptions are marine documents as regards place of issue? (*b*) How are they distinguished from each other?

Answer. (*a*) Marine documents are of two descriptions: Permanent, granted to vessels belonging to ports at which the document issues, and temporary, granted to vessels not belonging to ports at which the document issues.

(*b*) The two classes of documents are distinguished from each other by plainly writing the word "Permanent" or "Temporary" in the margin of the document immediately above the number.

Question. For what length of time are marine documents valid?

Answer. Registers and enrollments are valid for any length of time until a contingency shall arise requiring their surrender. Licenses are valid for one year only, but may be renewed or changed at any time during the year for which they are granted. No enrollment or license granted to any vessel shall be considered in force longer than such vessel is owned and is of the description as set forth in the document and is engaged in the business or employment for which the document was granted.

Question. What vessels of the United States may engage in the foreign trade by sea?

Answer. Registered vessels.

Question. May registered vessels engage in the domestic trade?

Answer. Registered vessels may engage in the domestic trade under the requirements of entering at the customhouse at every port of arrival, if laden with excess of certain commodities.

Question. What vessels may engage in the coasting trade or fisheries?

Answer. Vessels of 20 net tons or more enrolled and having a license in force, and vessels of 5 net tons and less than 20 net tons not enrolled but having a license in force.

Question. By whom must marine documents be signed?

Answer. They must be signed and sealed by the collector and countersigned by the naval officer of the port or by the surveyor. Certificates of registry must also bear the seal of the Department of Commerce and be signed by the Commissioner of Navigation.

Question. Must a vessel's tonnage be given in her marine documents?

Answer. Yes. Her gross and net or registered tonnage must be given.

Question. Where and how must a vessel's name and home port be marked on her?

Answer. The name of every documented vessel, yachts excepted," shall be marked in full upon each bow and upon the stern, and the home port shall also be marked in full upon the stern. The name shall be painted or carved or gilded in Roman letters in a light color on a dark ground or in a dark color on a light ground. The letters shall not be less than 4 inches high.

Question. Where else than on the bow and stern must the name of every steam vessel be marked?

Answer. Every steam vessel must also have her name conspicuously placed in distinct plain letters not less than 6 inches high on each outboard side of the pilot house, if it has such, and in case the vessel has side wheels, also on the outer side of each wheelhouse.

Question. Where must the name be placed on vessels called "double enders"?

Answer. On the parts corresponding to the bow and stern.

Question. Where must the name and home port be placed on documented yachts?

Answer. On some conspicuous part of their hulls.

Question. What is a vessel's home port?

Answer. A vessel's home port is that port established by law at or nearest to which the owner, or if there be more than one owner, at which the husband or managing owner usually resides.

Question. Must every documented vessel have an official number, and of what does it consist?

Answer. Yes. For all seagoing vessels of 100 tons or over it consists of numerals and letters, and for all other vessels, of numerals only, but signal letters may also be assigned to vessels of less than 100 tons when special application is made therefor.

Question. When a vessel shows her official number, does she display the letters or the numerals assigned to her?

Answer. She displays her signal letters only.

Question. How many letters form the signal letters of a merchant vessel of the United States, and where may the same be found?

Answer. Four letters. They may be found in the List of Merchant Vessels of the United States.

Question. What part of the vessel's official number is marked on the main beam?

Answer. The numerals assigned her, preceded by the abbreviation "No."

Question. Upon which beam must it be marked?

Answer. Upon the face of the beam under the forward side of the main hatch of seagoing and lake vessels and on the face of the beam under the afterside of the starboard forward hatch of western river steamers. On river steamers of the coast which carry passengers both above and below the main deck, where there is no hatch to the main deck, the markings should be painted upon one of the deck beams in a conspicuous place, as near as possible to the middle of the vessel.

Question. What else must be carved or permanently marked on the main beam?

Answer. The vessel's net tonnage.

Question. What vessels of the United States must be inspected by the local inspectors of steam vessels?

Answer. (*a*) Vessels other than motor boats propelled in whole or in part by steam and vessels of above 15 gross tons carrying freight or passengers for hire and propelled by gas, fluid, naphtha, or electric motors.

(*b*) Sailing vessels of over 700 gross tons carrying passengers for hire; seagoing barges of over 100 gross tons, and all other vessels of over 100 tons carrying passengers for hire.

Question. What is the law regarding the carrying of powder on steam vessels carrying passengers?

Answer. No steam vessel employed in the carriage of passengers shall carry gunpowder without having conspicuously posted on board such vessel a certificate issued by the local inspectors authorizing the carriage of such gunpowder.

Question. Must the master of every vessel of the United States be a citizen thereof?

Answer. Yes.

Question. Must the officers of every vessel of the United States be citizens thereof?

Answer. In general, all officers who shall have charge of a watch, including pilots, shall be citizens of the United States.

Question. What exceptions are there to the general law requring watch officers of vessels of the United States to be citizens thereof?

Answer. Where on a foreign voyage or on a voyage from an Atlantic to a Pacific port of the United States, such vessel, is for any reason, deprived of the services of an officer below the grade of master, his place or a vacancy caused by the promotion of another officer to such place may be supplied by a person not a citizen of the United States until the first return of such vessel to her home port.

Question. Whom, in addition to the master, mates, and pilots, does the word "officers" include on vessels propelled wholly or in part by steam?

Answer. The chief engineer and each assistant engineer in charge of a watch.

Question. What officers of steam vessels of the United States must be licensed?

Answer. All masters, chief mates, second and third mates if in charge of a watch, engineers, and pilots.

Question. Of other vessels?

Answer. The masters of sail vessels of over 700 gross tons and of all other vessels or barges of over 100 gross tons burden carrying passengers for hire. Chief mates of these vessels may be licensed on application, provided they pass the required examination, but no penalty accrues for failure of such vessel to carry a licensed mate.

Question. Must a licensed officer display his license on the vessel upon which he is employed?

Answer. Yes. Within 48 hours after going on board for duty, a licensed officer must display his certificate of license, which shall be framed under glass, in some conspicuous place on such vessel where it can be seen by passengers and others at all times.

Question. How can you tell how many licensed officers any steam merchant vessel or ocean-going vessel of the United States carrying passengers should have?

Answer. The number of licensed officers she should carry, as well as the number of men in her crew, is given on the vessel's certificate of inspection.

Question. What is a certificate of inspection?

Answer. It is a document issued a vessel certifying that the laws relating to the construction and equipment of such vessel have been complied with.

Question. Must the certificate of inspection be displayed on board inspected vessels?

Answer. Yes; it must be displayed in a conspicuous place in the vessel where it is most likely to be observed by passengers and others and be kept there at all times.

Question. What is the difference between an officer's license and the license issued to a vessel.

Answer. An officer's license is a document issued by a board of local inspectors of steam vessels authorizing the person to whom

it is granted to perform certain duties as an officer on vessels of the United States; a license issued to a vessel is a marine document granted by a collector of customs authorizing the employment of the vessel in the coasting trade or fisheries.

Question. How does a register and enrollment identify a vessel?

Answer. By her name, home port, build, dimensions, tonnage, and rig, and by her master's name and the name of her owner, and if more than one owner, by the names of all and the portion owned by each, and especially by her official number.

Question. How does a license identify a vessel?

Answer. By her official number, name, rig, and tonnage, and by her master's name and the name of her husband or managing owner.

Question. Must the enrollment and license of a vessel of 20 net tons and over be separate documents?

Answer. No; they may be consolidated into one document.

Question. Can a vessel enrolled and licensed for trade on the northern, northeastern, or northwestern frontiers engage in trade elsewhere than on those frontier waters?

Answer. No. On leaving the inland waters on the frontiers to engage in trade on the seaboard, she must surrender her frontier papers and take out coasting papers, and if bound on a foreign voyage partly by sea she must take out in lieu of her frontier papers a certificate of registry.

Question. Can a marine document be used for any other vessel than for the one for which it is granted?

Answer. No. It can be used solely for the vessel for which it is granted and shall not be sold, lent, or otherwise disposed of to any person whatever.

Question. When must permanent marine documents be surrendered?

Answer. Permanent marine documents are to be surrendered when a vessel is sold in whole or in part; when a vessel has been lost or taken by an enemy, or otherwise prevented from returning to the port to which she belongs; when a vessel is burned or broken up; when a vessel is altered in form or burden by being lengthened, shortened, or built upon, or from one denomination to another by the mode or method of rigging or fitting; on a change from one employment to another; on the death, removal, or resignation of one of the chief officers of an incorporated company owning any vessel and whose name appeared on the documents

of such vessel; on a change of residence of the managing owner from one port to another within the same customs district without change in ownership; and the exemption from documentation of vessels under the act of April 18, 1874.

Question. When must temporary marine documents be surrendered?

Answer. Temporary marine documents are to be surrendered to the collector at the port where the vessel belongs within 10 days after her arrival, and in all cases in which the surrender of the permanent documents is required.

Question. What is meant by the term "arrival" at the port where the vessel belongs?

Answer. By the term "arrival" is to be understood the voluntary arrival of the vessel at her home port to which she was destined in the regular course of her employment. If, for instance, a vessel is forced by stress of weather into her home port while on her voyage for another port of destination, or stops there on such voyage to take in provisions or water or take on passengers, or baggage, such not being her usual employment, it is not an "arrival" within the meaning of the law, and the master is not obliged in consequence thereof to surrender her temporary document and take out a permanent document.

Question. Can the name of a documented vessel be changed except as prescribed by law?

Answer. No; under penalty of forfeiture.

Question. Is it lawful for an officer of the customs to inspect the marine documents of a vessel?

Answer. It is lawful at all times for any officer of the customs to inspect the marine documents of any vessel, and if the master on board of any vessel shall not exhibit the same when required by such officer, he will be liable to a fine of $100. The papers of a documented vessel, when such vessel is in commission, should be on board and accessible to the person in charge, except when such papers are in the custody of the collector.

Question. What yachts may be licensed, and what privileges do licensed yachts have?

Answer. Yachts measuring 16 gross tons or over, used or employed exclusively as pleasure vessels, may be licensed to proceed from port to port within the United States, without entering or clearing, and to foreign ports without clearing at the customhouse.

Question. May they transport merchandise or passengers for hire?

Answer. No; they can not engage in any trade, nor in any way violate the revenue laws of the United States, under penalty of seizure and forfeiture.

Question. Must the master or other person in command of a yacht exhibit her marine documents on demand of any officer of the customs?

Answer. Yes; and he must submit to such examination as the officer may see fit to make for the due protection of the public revenues.

Question. Are foreign steam tugs permitted to tow documented vessels of the United States from one port or place in the same to another?

Answer. No; unless the towing is in whole or in part within or upon foreign waters.

Buoys.

Question. In coming from seaward, what color buoys mark the starboard or right-hand side of the channel?

Answer. Red.

Question. What color buoys mark the port or left-hand side?

Answer. Black.

Question. How are dangers and obstructions marked?

Answer. By buoys with black and red horizontal stripes.

Question. On which hand should these buoys be left?

Answer. They may be left on either hand.

Question. How are buoys that indicate the fairway marked?

Answer. With black and white vertical stripes. These buoys should be passed close-to.

Question. How are sunken wrecks marked?

Answer. By red and black buoys, horizontal stripes. These buoys are the same as obstruction buoys.

Question. What color are quarantine buoys?

Answer. Yellow.

Question. What are white buoys used for?

Answer. As they have no special meaning, they are often used for special purposes not connected with navigation.

Question. How are the starboard and port channel buoys numbered?

Answer. The numbers begin from the seaward end of the channel. Black buoys have odd numbers. Red buoys have even numbers.

Question. Why are perches or balls or cages sometimes placed on buoys?

Answer. Such buoys are at turning points. The color and the number indicate on which side they shall be passed.

Question. What types of buoys are in common use?

Answer. Nun, can, and spar.

Question. What is the shape of a nun buoy?

Answer. Conical.

Question. Of a can buoy?

Answer. Cylindrical.

SIGNALS.

MEANINGS OF FLAGS, PENNANTS, AND SIGNS.

Alphabet flags.

Question. What is the name and the dot and dash equivalent of flag **A**?

Answer. "Affirmative" (. —), written "Affirm."

Question. Replying to a signal, what does it indicate?

Answer. Assent, consent, permission granted, or "Yes."

Question. What is the name and the dot and dash equivalent of flag **B**?

Answer. "Boy" (— . . .).

Question. How is it used as explosive flag?

Answer. It is hoisted at foretruck when handling ammunition, fuel oil, or gasoline in large quantities; also displayed in the bows of all boats and lighters transporting same. At night a red light shall be displayed at the foretruck when handling ammunition, fuel oil, or gasoline in large quantities.

Question. What is the name and the dot and dash equivalent of pennant **C**?

Answer. "Cast" (— . — .).

Question. What is the name and the dot and dash equivalent of pennant **D**?

Answer. "Dog" (— . .).

Question. What is the name and the dot and dash equivalent of pennant **E**?

Answer. "Easy" (.).

Question. What is the name and the dot and dash equivalent of pennant **F**?

Answer. "Fox" (. . — .).

Question. What is the name and the dot and dash equivalent of pennant **G**?

Answer. "George" (— — .).

Question. For what is it used as a call?

Answer. For Government shore signal stations, etc.

Question. What is the name and the dot and dash equivalent of flag **H**?

Answer. "Have" (. . . .).

Question. What is the name and the dot and dash equivalent of flag **I**?

Answer. "Interrogatory" (. . — . —), written "Int." The dot and dash equivalent of the International flag "I," when used as a signal flag meaning "Interrogatory," must not be confused with the Morse equivalent of **I** (. .) when used as a letter.

Question. What is the name and the dot and dash equivalent of flag **J**?

Answer. "Jig" (. — — —).

Question. What is the name and the dot and dash equivalent of flag **K**?

Answer. "King" (— . —).

Question. What is the name and the dot and dash equivalent of flag **L**?

Answer. "Love" (. — . .).

Question. What is the name and the dot and dash equivalent of flag **M**?

Answer. "Mike" (— —).

Question. What does it mean at the main truck of ships and in the bow of boats?

Answer. It means that the ships and boats so flying it are carrying mail.

Question. What is the name and the dot and dash equivalent of flag **N**?

Answer. "Negative" (— .), written "Negat."

Question. What is the name and the dot and dash equivalent of flag **O**?

Answer. "Optional" (— — —), written "Option."

Question. What is the name and the dot and dash equivalent of flag **P**?

Answer. "Preparatory" (. — — .), written "Prep."

Question. What is the name and the dot and dash equivalent of flag **Q**?

Answer. "Quack" (— — . —).

Question. For what is it used?

Answer. Quarantine flag. Hoisted at the foremast, or other conspicuous point of hoist, by all ships in quarantine. Hoisted by incoming ships it is a signal to the health officer of the port that pratique is desired.

Question. What is the name and the dot and dash equivalent of flag **R**?

Answer. "Roger" (. — .).

Question. What is the name and the dot and dash equivalent of flag **S**?

Answer. "Sail" (. . .).

Question. What is the name and the dot and dash equivalent of flag **T**?

Answer. "Tare" (—).

Question. What is the name and the dot and dash equivalent of flag **U**?

Answer. "Unit" (. . —).

Question. What is the name and the dot and dash equivalent of flag **V**?

Answer. "Vice" (. . . —).

Question. What is the name and the dot and dash equivalent of flag **W**?

Answer. "Watch" (. — —).

Question. What is the name and the dot and dash equivalent of flag **X**?

Answer. "X-ray" (— . . —).

Question. What is the name and the dot and dash equivalent of flag **Y**?

Answer. "Yoke" (— . — —).

Question. What is the name and the dot and dash equivalent of flag **Z**?

Answer. "Zed" (— — . .).

Question. What is its meaning as a call?

Answer. General call. Hoisted at the foretruck it calls all absent from the ship to return immediately. A gun may be fired to call attention to it.

Question. How many numeral flags are there?

Answer. Ten.

Question. How are they used?

Answer. They are used in their numeral sense, in signals, with the alphabet flags and pennants and maneuvering pennants on ships in formation.

Question. What does the 5-flag mean when broken at the foretruck when under way?

Answer. "Breakdown" or "Not under control." The equivalent night signal for "Breakdown" or "Not under control" is two red lights arranged vertically.

Question. What does it mean when broken at the foretruck and lowered to the dip?

Answer. It means "Man overboard." When so used in thick weather a gun is fired at the same time. The equivalent night signal for "Man overboard" is the flashing of the two red lights mentioned above and the firing of a gun.

Question. What does the 6-flag mean when hoisted alone?

Answer. "General recall" for all boats away from the ship. Its night equivalent as "General recall" is six long flashes.

Question. How is it used to recall particular boats?

Answer. It is hoisted over the numeral pennants of the boats it is desired to recall.

Question. What does it mean over "Negative" over numeral pennants?

Answer. It recalls all boats except that indicated.

Question. What does it mean under "Negative" and over numeral pennants?

Answer. It directs the boat indicated not to return until recalled.

Question. When are numeral pennants used?

Answer. Only in calls. Their dot and dash equivalents are the same as those of the numeral flags.

SPECIAL FLAGS, PENNANTS, AND SIGNS.

Question. What does the answering pennant mean when hoisted at the yardarm?

Answer. It answers a flag-hoist call for a bridge dispatch. While hoisted, it indicates that the message is being read; when hauled down, that it is received; and if dipped that the last word was not received and should be repeated. When several ships are in company, and particularly on flagships, the answering pennant should be hoisted under the call of the ship answered, in order to avoid confusion.

Question. What is the dot and dash equivalent of the tack line?

Answer. — . — . . or $\overline{\text{TL}}$ made as one character. Written "Tack."

Question. What is the tack line and for what is it used?

Answer. In flag hoists it is a piece of line 6 feet long fitted with a ring and snap, like a flag, and used to separate flags of the same hoist, which, if hoisted at the ordinary distance apart, would convey a different meaning from that intended.

Question. In what three different ways may it be used?

Answer. (1) In flag hoists it separates a single alphabet flag used as a call from the signal proper.

(2) It is used in certain direct-reading signals for clearness.

(3) Where no confusion will result it may be used to separate distinct signals made at the same point of hoist.

Question. What is the "preliminary executive" sign?

Answer. . . — . . — or $\overline{\text{IX}}$ made as one character; when followed by a 10-second dash (——— 10 sec. ———) it constitutes the executive sign. The termination of the 10-second dash is the final signal of execution and corresponds to the "haul down" of a flag-hoist signal.

Question. What is the dot-and-dash "full-stop" sign?

Answer. . — . — . —

Question. For what is it used?

Answer. It is used to separate two complete signals sent at the same time and which are to be executed simultaneously.

Question. What is the "finale" sign?

Answer. The finale sign is . — . — .

Question. For what is it used?

Answer. To indicate the end of a signal that has just been sent.

Question. What is the "finish" sign?

Answer. . . . — . —

Question. For what is it used?

Answer. It is used in connection with nontactical signals to indicate that no more signals are to be sent at that particular time.

Visual Call System and Transmission of Signals by Flags.

VISUAL CALL SYSTEM.

Question. In calling or exchanging calls with naval ships or naval shore stations by flag signal, what calls are to be used?

Answer. The naval calls.

Question. In calling or exchanging calls with merchantmen, or when it is desired to inform shore stations other than naval of the name of the ship, what calls are to be used?

Answer. The International call letters.

Question. How is any Government signal station other than naval to be called?

Answer. The International alphabet pennant G (or G made by other means) is to be used by day, and at night G is to be made by flashing light. Similarly, G is used by a Government signal station to call a naval vessel (or the senior, if more than one is present).

Question. What is the dot-and-dash equivalent of the International answering pennant?

Answer. It is — — — — (MM made as one sign).

Question. In addition to the uses prescribed in the International Code of Signals, for what else is the International answering pennant used?

Answer. International answering pennant (or its dot-and-dash equivalent) is used to answer the call G, as follows:

(1) By flag, by hoisting the International answering pennant at the dip. The answering pennant is kept at the dip while communication is being exchanged, and is two-blocked and hauled down when communication has been understood and is completed.

(2) By dot and dash, by making the dot-and-dash equivalent (— — — —) of the International answering pennant.

Question. Is there an equivalent for the call pennants in semaphore?

Answer. No. When it is not practicable to call by hoist and the "attention sign" is not sufficiently definite, the first three or four letters of the unit's name will be used as a call.

Question. For what purposes are calls used?

Answer. For two purposes:

(1) As an address or "call up" for a signal or dispatch.

(2) To complete the meaning of a signal by referring to, indicating, or designating a unit, ship, or class of ships. When so used they are called "designating signals."

Question. How is an address or "call up" made by flag hoist?

Answer. (1) The call is hoisted above the signal, or as a separate hoist, at the same yardarm.

(2) As a "call up" for a bridge dispatch, the call is hoisted at the yardarm unless it is necessary to make such a call while flag signals are displayed at the same yardarm. In this case the call

for a bridge dispatch is hoisted at the dip. In either case the dipping of the call indicates an error, and hauling it down indicates the end of the dispatch.

Question. How is the tack line used in flag-hoist calls?

Answer. (1) To separate a signal from the last flag of a call, when the last flag of the call is an alphabet flag or the squadron or division flag.

(2) To separate the calls of classes or forces.

(3) To separate two single pennant calls.

Question. How is an address or "call up" made by dot and dash?

Answer. (1) The call precedes the signal and is separated therefrom in all *signals* by the "signal" sign (. . — —).

(2) Letters and numbers are made by their dot-and-dash equivalents.

Question. Is the tack-line sign used in calls made by dot and dash?

Answer. No.

Question. How are calls by dot and dash made?

Answer. All calls by dot and dash are made complete for each class, unit, or ship addressed, except that the squadron sign for certain squadrons and the class letter may be omitted at discretion.

Question. What flags are used in signals?

Answer. The flags used are those of the international alphabet. 10 numeral flags, 10 numeral pennants (used only in calls), and 14 special flags or pennants. (The numeral flags, numeral pennants, and special flags are not furnished Coast Guard stations.)

Question. How would you prevent confusion or mistakes in sending and receiving signals?

Answer. Due to the similarity in the sounds of the different letters, and to prevent confusion or mistakes, flags are to be referred to by the names assigned, as "Cast," "Roger," etc.; not **C**, **R**, etc.

Question. What is required in order that the best result may be obtained in signaling?

Answer. A thorough knowledge of the meanings of all flags and pennants, depending upon their position in the hoist, and a careful study not only of the system but of the signals themselves.

PROCEDURE SIGNS.

Question. Why are procedure signs prescribed?

Answer. They are prescribed for use with any system, *other than flags*, to facilitate and expedite the transmission of signals and dispatches.

Question. Should procedure signs be memorized?

Answer. Yes; as a thorough understanding of the uses of procedure signs is essential to obtain the best results and to prevent confusion.

Question. When a procedure sign consisting of a combination of letters appears printed in small capitals, with a heavy dash over them, how should it be sent?

Answer. The Morse equivalent of the sign so printed is to be transmitted as one character. Thus, $\overline{\text{INT}}$ is transmitted . . _ . _, there being no interval between letters as would be the case if the letters **INT** were transmitted individually, thus, . . _ . _, as in spelling the word "Intercept."

Question. What is the "full-stop" sign?

Answer. The letters $\overline{\text{AAA}}$ made as one sign (. _ . _ . _).

Question. For what is it used?

Answer. In dispatches to indicate the end of a sentence, and in signals to separate distinct signals which are to be executed by the same signal of execution.

Question. What is the "finale" sign?

Answer. $\overline{\text{AR}}$ made as one sign (. _ . _ .).

Question. For what is it used?

Answer. After the time of origin (or time of receipt, if used) of every dispatch. It is also used at the end of every other transmission which does not conclude with one of the procedure signs **B**, **K**, **R**, **Q**, or "$\overline{\text{VA}}$," the one exception to this being in the case of calling up and answering a call, in which case the "finale" sign is not used.

Question. How does the "finale" sign differ from the procedure sign $\overline{\text{VA}}$?

Answer. It differs in that it signifies the end of a particular dispatch and further signifies "I have stopped to receive your **R**," whereas $\overline{\text{VA}}$ signifies that no further communication is to be expected at that particular time, i. e., "work is finished."

Question. How would a receiver acknowledge the receipt of a dispatch?

Answer. By making **R** II $\overline{\text{VA}}$.

Question. If at the end of a dispatch the sender has another dispatch to follow, how does he indicate that fact?

Answer. By sending $\overline{\text{AR}}$ II **B**.

Question. How would the receiver indicate to the sender that he understood that another dispatch was to follow?

Answer. Instead of indicating "receipt" and "communication finished," he would make **R II K**, thus indicating to the sender that he had received the dispatch and that the sender was to "go ahead" with the next dispatch.

Question. What is the "double dash" sign?

Answer. The "double dash" sign is $\overline{\text{BT}}$ made as one sign (— . . . —). It is used to separate the heading from the text in all code dispatches. It is the code indicator.

Question. Give an example of its use in sending the following dispatch: **B 34** sends the code dispatch "**TEQX–ABXY**" to **B 25**.

Answer. **B 25 B 34 II GR 4 $\overline{\text{BT}}$ 1021 II TEQX II ABXY II 2015 II $\overline{\text{IMI}}$ II GR 4 $\overline{\text{BT}}$ 1021 II TEQX II ABXY II 2015 AR.**

Question. What does the "double dash" sign indicate in such cases?

Answer. That the groups of the text are from a code book and are not signals. The dispatch, being in code, is to be repeated twice.

Question. What is the "erase" sign and for what is it used?

Answer. The "erase" sign is a succession of E's, made separately about 10 times (. . . . .). It is used to erase a word or group which has been incorrectly transmitted.

Question. If, in the course of a signal or a dispatch, a word or group is incorrectly made, what should be done?

Answer. The sender must immediately make the "erase" sign, then make the last word or group which was correctly transmitted and continue the signal or dispatch.

Question. **B 34**, in sending to **B 25** the dispatch "Prepare to receive stores," misspells the word "to." What should he do?

Answer. The procedure is as follows: Prepare ti "erase" sign, prepare to receive stores 2015 $\overline{\text{AR}}$.

Question. What is the "group" sign?

Answer. The "group" sign is the letters **GR** made separately (— — . — .) and followed immediately, without the "break" sign, by a number (Example, **GR 12**).

Question. Where is it used and what does it signify?

Answer. It is used at the end of the prefix to signify: "The text, office, and date number, and time reference number, together contain the number of words or groups indicated."

Question. What is the position of **GR** and its number in a dispatch?

Answer. The position of **GR** and its number is invariably at the end of the prefix.

Question. Give an example of the use of the "group" sign.

Answer. B 34 B 25 II GR 5 II prepare to receive stores 2015 AR

Question. Is the use of GR obligatory?

Answer. It is obligatory in all code dispatches, in all official plain-language dispatches, and in all signals from the Signal Vocabulary sent in dispatch form.

Question. What is the object of the group sign?

Answer. (1) To inform the receiving unit of the length of the dispatch about to be transmitted. When the transmission has been completed it enables the receiving unit to know whether it has received the correct number of words or groups.

(2) To enable the receiving unit to piece together parts of a dispatch by referring to the groups by their numerical position in the dispatch, or to request repetitions of or to correct certain words or groups.

Question. For what purpose may the "group" sign be used in conjunction with the "interrogatory" sign (INT)?

Answer. The "group" sign may be used in conjunction with the "interrogatory" sign (INT) to verify the number of groups in a dispatch which has been transmitted.

Question. When so used, what does this combination signify?

Answer. It signifies "What is the number of groups?"

Question. Give an example of its use and tell what it signifies.

Answer. B 25 B 34 II INT GR AR. This signifies "What is the number of groups in your last dispatch?"

Question. Give another example of its use and tell what it signifies in that example.

Answer. B 25 B 34 II INT GR II 1432 AR. In this example it signifies "What is the number of groups in your dispatch timed 1432?"

Question. How do you count groups in dispatches?

Answer. When counting groups in dispatches each word or group counts as one. The "office reference number and date group" and "time of origin" each count as one group.

Question. In counting groups, are repeated code groups and procedure signs counted?

Answer. They are not.

Question. How are groups counted in plain-language dispatches?

Answer. Each word of the text, including the time of origin, and office reference number and date group (if used), is counted.

Question. How are groups counted in code dispatches (or dispatches made up of code and plain language)?

Answer. Each group of the text and each plain-language word (if any), and also the time of origin, and office reference number and date group (if used), is counted.

Question. What is the "break" sign?

Answer. The "break" sign is the letters **II** made separately (.. ..).

Question. When is the "break" sign used?

Answer. (1) In any dispatch between the component parts of the heading and between the time of origin and time of receipt, if latter is used.

(2) In code dispatches between the groups of the text and between the text and time of origin.

(3) Between procedure signs (except that it is not used before the "erase" sign nor before the "finale" sign $\overline{\text{AR}}$) and between the last group of a portion of a dispatch and a procedure sign.

Question. Give an example of its use in the first case.

Answer. **B 25 B 34 II Y II GR 9 II** proceed on service assigned at time previously indicated **2210** $\overline{\text{AR}}$.

Question. Give another example of its use in the first case.

Answer. **B 25 B 34 II GR 35 II** the following dispatch has been received from Navy Department quote 1024 direct commanding officer Pennsylvania proceed immediately to Washington and report to Chief of Naval Operations for temporary duty **0830** signed Secnav unquote comply **2045 II TOR II 2330** $\overline{\text{AR}}$.

Question. Give an example of its use in the third case.

Answer. **B 25 B 34 II** $\overline{\text{IMI}}$ **II W** $\overline{\text{AR}}$.

Question. Give another example of its use in the third case.

Answer. **B 25 B 34 II GR 105 II** first portion of dispatch **II B.**

Question. What care should be taken in making the "break" sign?

Answer. The spacing on each side of a "break" sign should be lengthened sufficiently to make it quite distinctive; the "break" sign itself may then be made as quickly as possible, care being taken that its component parts are not run into one another and thus confused with the letter **H.**

Question. What is the "repeat" sign?

Answer. The "repeat" sign is $\overline{\text{IMI}}$ made as one sign (.. — — ..).

Question. What does the "repeat" sign signify?

Answer. It signifies "repeat."

Question. When is the "repeat" sign used?

Answer. It is used during, or immediately following, the transmission of a signal or dispatch to request a repetition of that part which was not received; and it must be used prior to acknowledging receipt of the signal or dispatch.

Question. If a signal or dispatch has been acknowledged as having been received, would you use the repeat sign to request a repetition?

Answer. No. If a signal or dispatch has been acknowledged as having been received by sending **R**, the repeat sign must not be used to request a repetition, but such repetition must be obtained by use of the procedure sign **J**.

Question. What do requests for repetitions of parts of a dispatch necessarily entail?

Answer. (1) Quoting or otherwise indicating those parts of the dispatch which were correctly received and which stand next to (before, after, or on either side of) the doubtful part.

(2) Indicating the doubtful part itself.

Question. How are requests for repetitions normally made?

Answer. By using **IMI**. A special case, used in plain-language dispatches, is dealt with by using **IMI** in conjunction with **WA**.

Question. What signifies "Repeat all before (word or group)"?

Answer. **IMI AB** (word or group).

Question. What signifies "Repeat from (word or group) to (word or group)"?

Answer. (Word or group) **II IMI II** (word or group).

Question. What signifies "Repeat all after (word or group)"?

Answer. **IMI AA** (word or group).

Question. What signifies that the repetition of single words in plain-language dispatches is required?

Answer. The "word after" sign (**WA**) is used after **IMI** and followed by the word after which repetition is desired. Thus, "**IMI WA** immediately **AR**" signifies repeat word after "immediately," while "**IMI WA** immediately **II WA** of **AR**" signifies repeat word after "immediately" and word after "of."

Question. What shall be done in case the word preceding the faulty word occurs more than once in the dispatch?

Answer. **WA** should be followed by two or three consecutive words immediately preceding the faulty one.

Question. In dispatches composed entirely of code groups, how is a request for repeat made?

Answer. By referring to the groups by number.

(1) IMI **AB** (No.) signifies "Repeat all before group No. ——."
(2) (No.) **II** IMI **II** (No.) signifies "Repeat from group No. —— to group No. ——."
(3) IMI **AA** (No.) signifies "Repeat all after group No. ——."
(4) IMI **GR** (No.) signifies "Repeat group No. ——."
(5) IMI **GR** (No.) **II GR** (No.) signifies "Repeat group No. —— and group No. ——."

Question. What is the "time of receipt" sign?

Answer. The "time of receipt" sign is the letters **TOR** made separately (— — — — .—.).

Question. How is it used and what does it denote?

Answer. It is used in conjunction with a four-figure time group (similar in composition to the time of origin number). It denotes the time at which the receiving unit completes the reception of the dispatch. Thus "**TOR II 2330**" at the end of a dispatch would indicate that the dispatch was received at 11.30 p. m. (see second example of the use of the "break" sign).

Question. What is the "unofficial" sign and how is it used?

Answer. The "unofficial" sign is the letters **UN** made separately (.— —.), and is used in the prefix to indicate the unofficial nature of a dispatch.

Question. Where does the "unofficial" sign occur in a dispatch?

Answer. It immediately precedes the name of the addressee and the name of the person signing the dispach, thus: "**UN** to Lieut. Smith from Brown."

Question. Give an example of the use of the "unofficial" sign in a dispatch.

Answer. **B 25 B 34 II UN** to Lieut. Smith from Brown **II** Will meet you at time indicated AR.

Question. Is the number of groups in an unofficial dispatch indicated?

Answer. No; not usually.

Question. What is the "finish" sign, and what does it indicate?

Answer. The "finish" sign is VA, made as one sign (...—.—), and it signifies "communication is finished."

Question. When and how is the "finish" sign used?

Answer. It is used only when neither the transmitter nor the receiver has any further communication. It is always preceded by the "break" sign, and is appended to whatever has to be made by the unit which transmits last.

Question. Give an example of its use in a dispatch.

Answer. B 34 sends to B 25: B 25 B 34 II GR 9 II anchor will be clear in about an hour 1430 AR.

B 25 makes: R II WA.

Question. What is the "word after" sign, and how is it used?

Answer. The "word after" sign is the letters WA made separately (.— .—). It is used in conjunction with the "repeat" sign (IMI) for obtaining repetitions in plain-language dispatches, to signify "Repeat word after ———." (Its use is explained in questions relating to the use of IMI).

Question. What is the "preliminary executive" sign for the "executive to follow"?

Answer. It is IX made as one sign (.—..—).

Question. Where and how is it used?

Answer. It is used immediately preceding the executive sign (——— sec. 10 ———) as a preliminary executive and signifies "The executive sign will follow immediately." It is to be repeated several times, or until the transmitter is assured the receiving units are ready and prepared for the executive sign.

Question. What is the "executive" sign, how is it written, and what does it mean?

Answer. The "executive" sign is a 10-second flash (or blast) and is written (10-second). It means that the purport of the signal is to be carried out immediately on the termination of the 10-second dash.

Question. When making the "executive" sign, is the text of the signal which is to be carried out ever repeated before the "executive" sign?

Answer. Yes. The text of the signal which is to be carried out is to be repeated before the "executive" sign in the following cases:

(1) When there is any possibility of doubt as to which signal the "executive" sign refers.

(2) When a second further signal requiring an "execute" is made before the "execute" sign is made for the first signal.

(3) When a considerable time has elapsed between the transmission of a signal and the "executive" sign for that signal.

Question. Can the "executive" sign be annulled?

Answer. The "executive" sign can not be annulled after it has once been made.

Question. How can any desired degree of security for the reception of a signal before giving the "execute" be insured?

Answer. By adding suitable procedure signs, as follows:

(1) By using the procedure sign **Y** all units will answer and acknowledge, but none will repeat back.

(2) By using the procedure sign **G** all units will repeat back, but none will acknowledge.

(3) By using the procedure signs **G** and **Y** all units will repeat back and acknowledge.

SINGLE-LETTER PROCEDURE SIGNS.

Question. With what must single-letter procedure signs not be confused, and how is confusion avoided?

Answer. Single-letter procedure signs are not to be confused with single-letter "signals." When used as *signals* the letter will *follow* the signal sign. When used as procedure signs they *precede* the signal sign.

Question. What does the letter **B** signify when used alone as a dispatch?

Answer. "Has dispatch been received?" The letter **B** is not used in the heading as a procedure sign.

Question. Is it ever desirable to send a dispatch in portions?

Answer. It is when making a long dispatch. In order to insure that each portion has been received before proceeding with the next, the letter **B** is made at the end of each portion.

Question. How does the receiving unit indicate that it has received each portion of the dispatch correctly?

Answer. After the conclusion of each portion, if the receiving unit has received the portion transmitted, it makes **K** (go on) and the transmitting unit proceeds with the dispatch.

Question. Give an example of the use of **B** and **K** in a plain-language dispatch.

Answer. **B 34** has a 90-word plain-language dispatch to send to **B 25.**

B 34 sends as follows: **B 25 B 34 II GR 90 II** first thirty words of text **II B.**

B 25 answers: **K** (go on), or **IMI**, etc., as required.

As soon as **B 25** has made **K**, indicating that the first portion has been received, **B 34** proceeds with the subsequent portions of the dispatch in a similar manner.

Question: How is the last portion of a dispatch transmitted?

Answer. In the usual manner, thus: **II** last portion of the dispatch **1400 AR.**

B 25 makes: **R II** $\overline{\text{VA}}$.

Question. When the transmitting unit has more than one dispatch to transmit to the same receiving unit, what is the procedure?

Answer. The letter **B** (preceded by the "break" sign **II**) is used after the completion of each dispatch, and signifies "There is more to follow." The letter **B** is not used upon the completion of the last dispatch, and its omission signifies to the receiving unit that there are no further dispatches to follow at that particular time.

Question. Give an example of the use of the letter **B** in sending two dispatches to the same unit.

Answer. **B 34** has two dispatches for **B 25.**

B 34 makes the first dispatch as follows: **B 25 B 34 II GR 8 II** make preparations for sailing at daylight tomorrow **1825** $\overline{\text{AR}}$ **II B.**

B 25 answers: **R II K.**

B 34 then proceeds with the second dispatch for **B 25** as follows: **Un** to Captain Smith from Jones **II** best wishes for a pleasant voyage $\overline{\text{AR}}$.

B 25 answers: **R II** $\overline{\text{VA}}$.

Question. How would you ascertain if a particular dispatch has been received by the unit to which sent?

Answer. By making the letter **B** followed by a four-figure numeral group (time of origin) or by two four-figure groups separated by "break" (office reference number and date groups and time of origin), signifying "Has dispatch reference number —— been received?"

Question. Give example of the use of **B** in this last connection.

Answer. **B 34**, wishing to ascertain whether **B 25** has received dispatch timed **1400**, makes: **B 25 B 34 II B 1400** $\overline{\text{AR}}$.

If **B 25** is not able to give the required information at once, **B 25** answers: **R**, followed later by **R 1400** or **N 1400**, according as she has or has not received the dispatch timed **1400** from **B 34.**

Question. What does the letter **C** used alone as a dispatch signify?

Answer. "You are correct."

Question. Give an example.

Answer. **B 25** having repeated back correctly a dispatch from **B 34** which was prefaced "Repeat back" (**G**), **B 34** makes: **C II** $\overline{\text{VA}}$.

Question. What does the letter **C**, followed by a dispatch or by groups from a dispatch, signify?

Answer. "Following is correct version of dispatch timed ——." It may be used in this connection by a unit which discovers an error in the coding or transmission of an outgoing dispatch already transmitted (although the receiving unit has not yet requested a check).

Question. How many times must words or groups in dispatches be made when giving the correct version of dispatches or groups in dispatches?

Answer. In giving the correct version of dispatches or groups in dispatches they are to be made once only, even though the original dispatch may have been sent twice, as in code dispatches.

Question. Give an example of the use of the letter **C** followed by a dispatch or by groups from a dispatch.

Answer. **B 34**, having transmitted a dispatch timed **1015** to **B 25**, finds that the twelfth group was incorrectly transmitted. **B 34** corrects the dispatch by making the correct group as follows: **C II 12 II ABKQ II 1015 $\overline{\text{AR}}$.**

B 25 makes: **R II $\overline{\text{VA}}$.**

Question. Is the letter **C** used in reply to the letter **J** (check the coding from the decode and repeat)?

Answer. The letter **C** is always to be used in reply to the letter **J** (check the coding from the decode and repeat), whether or not the dispatch or group concerned was, in the first instance, correctly coded or transmitted, thus indicating to the receiving unit that the dispatch has been checked.

Question. Is the letter **C** used in the heading as a procedure sign?

Answer. It is not.

Question. What does the letter **G** used alone as a dispatch signify?

Answer. The letter **G** used alone as a dispatch or in the prefix signifies "Repeat back."

Question. When is a dispatch to be repeated back in response to **G** used alone?

Answer. The complete dispatch is to be transmitted before the receiving unit commences to repeat back, the transmitting unit signifying the end of the dispatch with the "finale" sign $\overline{\text{AR}}$. When repeating back or correcting repetitions the text or groups concerned are to be made once only, even though the original dispatch may have been made twice, as in code dispatches.

Question. **B 34** has a dispatch, **KUBO ABYZ 1040**, for **B 25** and wishes it repeated back. Give the procedure.

Answer. **B 34** makes: **B 25 B 34 II G II GR 3 KUBO II ABYZ II 1040 $\overline{\text{AR}}$.**

B 25 repeats back the dispatch as follows: **GR 3 KUBO IIABYZ II 1040 $\overline{\text{AR}}$.**

B 34 makes: **C II $\overline{\text{VA}}$.**

Question. What does the letter G signify when followed by a four-figure numeral group (time of origin) or by two four-figure groups separated by "break" ("office reference number and date group" and "time of origin")?

Answer. "Repeat back dispatch timed ——."

Question. B 34 sends to B 25 a dispatch timed 1040 and subsequently wishes B 25 to repeat it back. What does he do?

Answer. B 34 makes: B 25 B 34 II G 1040 $\overline{AR}$. To which B 25 answers: R, if not in a position to immediately repeat back B 34's 1040; B 25 subsequently repeats back as follows: B 34 B 25 II B25 V B 34 II, etc., —————— 1040 $\overline{AR}$. If, however, B 25 is able to repeat it back immediately, she does not make R but repeats back the dispatch.

Question. Should part of a dispatch be repeated back incorrectly by the receiving unit, what should the transmitting unit do?

Answer. The transmitting unit should repeat that part of the dispatch again, commencing a few words (or groups) before, and ending a few words (or groups) after the incorrectly repeated portion.

Question. What does the letter J signify when used alone?

Answer. The letter J, when referring to code dispatches, signifies: "Check the coding from the decode and repeat." When referring to plain-language dispatches it signifies: "Check contents of your dispatch and repeat." The letter J is to be used for requesting a "check and repetition" in the same manner that the "repeat" sign ($\overline{IMI}$) is used in requesting a repetition.

Question. When a unit, having acknowledged receipt of a dispatch, subsequently doubts the correctness of the dispatch or any groups in it, what must it do?

Answer. It must request the transmitting unit to "check the coding and repeat" the doubtful portions. In such cases the "repeat" sign ($\overline{IMI}$) or "interrogatory" sign ($\overline{INT}$) must not be used, as neither of them necessitates that the coding be checked.

Question. Is the letter J used in the heading as a procedure sign?

Answer. No.

Question. How would you refer to certain words or code groups of a dispatch?

Answer. The words or groups may be referred to by their number; thus, J 2 II 4 II 2045, referring to a code dispatch, signifies "Check the coding and repeat groups 2 and 4 of dispatch timed 2045," or, if referring to a plain-language dispatch, it signifies "Check words 2 and 4 and repeat."

Question. Is the J used in conjunction with the "word after" sign (WA); and if so, what does it signify?

Answer. It may be so used to signify "Check and repeat the word 'after' ———."

Question. Give an example of its use in this connection and tell what it signifies.

Answer. "J II WA rendezvous at AR." This signifies "Check and repeat the word immediately following 'rendezvous at.'"

Question. What does the letter J followed by a four-figure numeral group (time of origin), or by two four-figure groups separated by "break" ("office reference number and date group" and "time of origin"), signify?

Answer. "Check the coding and repeat dispatch timed ——."

Question. Give an example of the use of J asking to have the coding of the whole dispatch checked and the dispatch repeated, B 34 having sent a dispatch timed 2045 to B 25.

Answer. B 34 B 25 II J 2045 AR. B 34 answers: R, and follows the procedure for transmitting the dispatch or groups as explained under the letter C.

Question. In the preceding question, suppose you wished to have the second and fourth groups repeated, give the procedure.

Answer. B 34 B 25 II J 2 II 4 II 2045 AR. B 34 answers: R, and follows the procedure for transmitting groups as shown under the letter C.

Question. What does the letter K used alone as a dispatch signify?

Answer. "Go on" (Go on with your dispatch).

Question. Is the letter K used in the heading as a procedure sign?

Answer. No.

Question. What does the letter K signify when used in conjunction with the "interrogatory" sign (INT)?

Answer. "May I go on?"

Question. Give an example of its use.

Answer. B 34 having directed B 25 to "wait" (Q), now wishes B 25 to go on with his dispatch. B 34, after calling B 25, if necessary, makes K, and B 25 proceeds with his dispatch.

Question. Give another example of the use of K alone.

Answer. B 25, having waited for some time for permission to proceed with his dispatch, may make to B 34: B 34 B 25 INT K, thus asking for permission to go ahead. B 34 may make: K or Q, according to circumstances.

Question. What does the letter **M** used in the preamble signify?

Answer. "Relay following via."

Question. What does the letter **N** signify when followed by a four-figure numeral group (time of origin) or by two four-figure groups separated by "break" ("office reference number and date group" and "time of origin"), or by a dispatch serial number, such as Alnav 12, Alatl 10, etc.?

Answer. "Dispatch ——— has not been received."

Question. Is the letter **N** used in the heading as a procedure sign?

Answer. No.

Question. What does the letter **Q**, used as a dispatch in itself signify?

Answer. "Wait."

Question. Give an example of its use.

Answer. **B 25**, having been called by **B 34**, but being unable to take a dispatch from **B 34** at the time, answers **B 34** thus: **Q**. When ready to receive, **B 25**, after calling **B 34**, makes: **K**.

Question. If a unit is directed by another unit to wait, when should it recommence transmission with that unit?

Answer. Not until directed to do so by the procedure sign **K** (go on).

Question. How long should it wait for the "go ahead" sign (**K**) to be made?

Answer. Should it appear, after a reasonable interval, that the "go ahead" sign (**K**) has been overlooked, the unit which has been directed to wait should call up and ask permission to communicate by making **INT K**.

Question. Is the letter **Q** used in the heading as a procedure sign?

Answer. No.

Question. What does the letter **R**, used as a dispatch in itself, signify?

Answer. "Dispatch received." It is the signalman's acknowledgment to the transmitter that he has received the dispatch.

Question. Give an example of the use of **R** when **B 34** has sent a plain-language dispatch to **B 25**, as follows: **B 25** **B 34 II** text of **P/L** dispatch 2030 **AR**.

Answer. **B 25**, having received the dispatch, makes: **R II VA**.

Question. What does the letter **R** signify when followed by a four-figure numeral group (time of origin) or by two four-figure groups separated by "break" ("office reference number and date group" and "time of origin"), or by a dispatch serial number, such as Alatl 52?

Answer. "Dispatch ——— has been received."

Question. Give an example.

Answer. **B 25**, wishing to inform **B 34** that Alnav 60 has b ceived, makes: **B 34** **B 25 II R 60** Alnav $\overline{\text{AR}}$.

Question. Is the letter **R** used in the heading as a proce

Answer. No.

Question. What does the letter **T**, used in the preamb

Answer. "Relay following to ———."

Question. What does the letter **V**, used between call sign

Answer. "From ———."

Question. When is the letter **V** used in this connection?

Answer. Only in the case of dispatches in which the lette are used in the preamble to show the addressee from whom patch has come, and in the case of dispatches repeated bac requested by a unit subsequent to the time at which the dispa originally sent.

Question. What does the letter **W**, used by itself, signify?

Answer. "Am unable to read your message."

Question. If signaling by flashing light, what does **W**, us itself, signify?

Answer. Light not properly trained or light burning badly.

Question. What does the letter **W**, used by itself, signify wh signalling by semaphore or flag waving?

Answer. Poor background or interference, such as smoke, etc.

Question. When is this signal to be made?

Answer. By any receiving unit at any stage of the transmitting, if required.

Question. Give an example of its use when **B 34** is sending a dispatch by searchlight by day to **B 25**.

Answer. If due to bad training of the light or bad focus **B 25** finds it difficult to read the dispatch, he informs **B 34** of this by making **W**, repeating it as necessary until **B 34** corrects the fault. **B 34** should then repeat the whole dispatch, unless **B 25** has received part of the dispatch before it becomes necessary to make **W**, in which case he should request repetition of so much of it as may be necessary by the procedure sign $\overline{\text{IMI}}$ calling **B 34**, if necessary.

Question. What does the letter **Y**, used as a dispatch in itself, signify?

Answer. "Acknowledge."

Question. What does the letter **Y** in the prefix signify?

Answer. It directs the addressee to acknowledge the dispatch.

estion. Give an example of its use.

swer. B 34 has the dispatch "Pleasant voyage—1020" for B 25. spatch is to be acknowledged. B 34 makes: B 25 B34 II Y II asant voyage II 1020 AR. B 25 makes: R.

n. What does the letter Y signify when followed by a four- meral group (time of origin) or by two four-figure groups by "break" ("office reference number and date group" of origin")?

"Dispatch ——— understood."

ion. Give an example of its use, B 25 having received the just given, and the dispatch having been understood, and it esired to report this fact to B 34.

er. B 25 makes to B 34: B 34 B 25 II Y 1020 AR. B 34 R II VA.

tion. What is required before a dispatch is acknowledged?

ver. It must be distinctly understood that a dispatch is not cknowledged until it is understood by the addressee, and that thority of the commanding officer, or other competent author- required before the acknowledgment is made.

estion. What does the "interrogatory" sign (INT), used in unction with the letter Y and a time of origin or office reference mber and date group, signify?

Answer. "Is dispatch referenced ——— understood?"

Question. For what purpose may the letter Y used in conjunction with the "interrogatory" sign in this manner be used?

Answer. (1) To hasten the acknowledgment of a prior dispatch which is prefixed "Acknowledge."

(2) To call for an acknowledgment of a prior dispatch which was not originally prefixed "Acknowledge."

Question. Give an example of its use when B 34 wishes B 25 to acknowledge B 34's dispatch timed 1020:

(1) Dispatch was not originally prefixed "Acknowledge."

(2) Dispatch was prefixed "Acknowledge," but B 25 has not yet acknowledged.

Answer. In either case, B 34 makes to B 25: B 25 B 34 II INT Y 1020 AR.

Question. What restriction is placed upon the use of the "interrogatory" sign in conjunction with the letter Y?

Answer. It must not be used without the authority of a responsible officer.

Question. What does the letter Z used in the preamble signify?

Answer. "Addressed to ———."

Question. When is the letter **Z** so used?

Answer. It is used only in dispatches that have been transmitted from the originator to the addressee by an intermediate ship or unit, and then only by the relaying ship or unit to the addressee, to show the latter that the dispatch is a relayed one and is addressed to that ship or unit.

Question. Give an example of the use of the letter **Z** in the preamble, when **B 34** has a dispatch for **B 25** and wishes to send it to **B 36** for retransmission to **B 25**.

Answer. **B 34** makes: **B 36 B 34 II T II B 25 V B 34 II GR 10 II** report probable time at which anchor will be clear **0935** $\overline{\text{AR}}$. **B 36** then transmits the dispatch to **B 25** as follows: **B 25 B 36 II Z II B 25 V B 34 II GR 10 II**, etc. This procedure indicates to **B 25** that the dispatch is addressed to her and is from **B 34**.

Question. What is to be noted in relaying a dispatch such as the one just given?

Answer. It is to be noted that when **B 34** is sending to **B 36** the procedure sign **T** is used, which directs **B 36** to relay the dispatch which follows to **B 25**. When **B 36** retransmits to **B 25**, the **T** changes to **Z**, for the dispatch is addressed to **B 25** and is not to be transmitted further.

TRANSMISSION OF SIGNALS AND DISPATCHES BY METHODS OTHER THAN BY FLAGS.

Definitions.

Question. Are the definitions of following terms used throughout these instructions?

Answer. Yes.

Question. What is the definition of *acknowledgment?*

Answer. A dispatch (or signal) is acknowledged by a separate dispatch from the addressee, informing the originator that his dispatch (or signal) has been received and is understood. This separate dispatch is an "acknowledgment."

Question. What is the definition of *addressee?*

Answer. Addressee is the authority to whom signal or dispatch is addressed.

Question. What is the definition of *addressed to?*

Answer. This term denotes that the authority indicated is required to take all necessary action to carry out the purport of the signal or dispatch.

Question. What is the definition of *dispatch?*

Answer. A dispatch is any communication other than a signal or letter, regardless of the method of transmission.

Question. What is the definition of *dip?*

Answer. Signals are said to be at the dip when the top of the top flag of the signal is about 8 feet from being two-blocked (i. e., about 8 feet from the yardarm).

Question. What is the definition of *originator?*

Answer. Originator is the authority who orders a signal or dispatch to be sent.

Question. What is the definition of *procedure?*

Answer. This term denotes the rules drawn up for the conduct of transmission of signals and dispatches.

Question. What is the definition of *procedure sign?*

Answer. Procedure sign is a sign designed for facilitating the conduct of transmission.

Question. What is the definition of *receiving ship?*

Answer. Receiving ship is the ship by which a signal or dispatch is actually being read.

Question. What is the definition of *reply?*

Answer. Reply is a signal or dispatch originating out of, referring to, or replying to a question asked in a prior signal or dispatch.

Question. What is the definition of *signal?*

Answer. A signal is an arbitrary combination of letters, numbers, and special signs, the meaning of which is to be found in a Signal Book. Signals are distinguished by that term from communications spelled out in plain language or sent in code, which are classified as "dispatches."

Question. What is the definition of *transmitting ship or unit?*

Answer. Transmitting ship or unit is the ship or unit by which a dispatch is actually being made.

PARTS OF A SIGNAL OR DISPATCH.

Question. With any system using the Morse code, is a full signification of the communication apparent?

Answer. It is not apparent until the communication is complete; that is, the addressee, on seeing or hearing his call, has no knowledge of what is to follow. Not only must the signal or dispatch be transmitted and received part by part according to a prescribed order, but special signs are necessary for clearness and precision.

Question. In general, of what does a signal or a dispatch consist?

Answer. (1) The heading, consisting of—

a. The call (always appears).
b. The preamble.
c. The address.
d. The prefix.

(May or may not appear.)

(2) The office reference number and date group (may or may not appear in dispatches, never appear in signals).

(3) The text (always appears).

(4) The time of origin number (usually appears in official dispatches; does not usually appear in signals).

Question. Of what does the *call* consist and how is it used?

Answer. The call consists of the call(s) of the receiving unit(s) and the call of the transmitting unit. In establishing communication the transmitting unit calls the receiving unit by making the call of that unit. The latter answers by repeating the call as made by the transmitting unit. The transmitting unit then sends its own call, which is repeated by the receiving unit(s).

Question. Of what does the preamble consist?

Answer. Of procedure signs and, if necessary, the calls denoting the route of the signal or dispatch.

Question. Of what does the address consist?

Answer. The address consists of the call of the addressee and the call of the originator separated by V (from).

Question. Of what does the prefix consist?

Answer. Of procedure signs denoting the type of signal or dispatch and any instructions regarding the signal or dispatch itself. It also includes the number of groups or words in the text, preceded by the procedure sign **GR**. The position of the group sign (**GR**) is at the end of the prefix.

Question. By what is the heading separated from the text if the text is in plain language?

Answer. By **II**.

Question. By what is it separated if the text consists of code?

Answer. By $\overline{\text{BT}}$.

Question. By what is it separated if the text consists of a signal or signals?

Answer. By $\overline{\text{IM}}$ (the signals sign).

Question. Of what does the office reference number and date group consist?

Answer. Of a four (or five) figure group, the first two (or three) figures of which designate an office or officer, the last two the day of the month.

Question. What is the first group of the text?

Answer. The office reference number and date group is the first group of the text and, when used, counts as one group in counting the total number of groups or words.

Question. Is the office reference number and date group to be coded?

Answer. They are not, unless they appear in the body of the text.

Question. What does the text comprise?

Answer. The communication itself, whether in plain language, code, or groups from a signal book.

Question. Of what does the time of origin number consist?

Answer. It consists of a four-figure group, the first two representing hours from midnight, the last two the minutes past the hour.

Question. Is the time of origin number to be coded?

Answer. It is not, unless it appears in the body of the text.

Question. Where does the time of origin number appear in a message and how is it counted?

Answer. It is the last group of the text and is counted as one group in counting the total number of groups or words.

Question. What is the time of receipt number?

Answer. The time of receipt is a four-figure group, the first two figures representing the hours past midnight, the last two the minutes past the hour.

Question. What does the time of receipt indicate and of what importance is it?

Answer. It indicates the time a dispatch was received; it is of importance only in relayed dispatches and in locating delays in transmission.

Question. When the number of words or groups is stated in the prefix, does this number include the time of receipt sign or time of receipt group?

Answer. It does not.

Question. How is the end of transmission indicated?

Answer. By the "finale" sign $\overline{\text{AR}}$, or the "finish" sign $\overline{\text{VA}}$.

Question. With what should dispatches ordinarily terminate?

Answer. With a "finale" sign $\overline{\text{AR}}$, and not with a "finish" sign $\overline{\text{VA}}$.

Question. What does the "finish" sign mean and when is it to be used?

Answer. It means "communication finished" and should be used only when there is nothing more to follow.

Question. Give an example to illustrate the various parts of a dispatch (flashing light).

Answer. The *Wyoming* (**B 32**) has a code dispatch "**1721 ABCD EFGH 2013**" received from the *Texas* (**B 35**) to transmit to the *New York* (**B 34**) addressed to or for further transmission to the *New Mexico* (**B 40**).

The proper position of the various procedure signs in a dispatch, when their use is required, is *indicated* in the right-hand column.

Example of a dispatch.

Parts of the dispatch.	The dispatch as transmitted.	Signification.	Position of prescribed procedure signs when their use is required.
Call	**B 34**	New York receiving	
	B 32	Wyoming transmitting.	
	II	Break	
Preamble	**T**	Pass following to	Procedure signs **T** and **Z**.
	II	Break	
Address	**B40**	New Mexico	
	V	From	Procedure sign **V**.
	B 35	Texas	
	II	Break	
Prefix	**GR 4**	Number of groups, 4	Procedure signs **G. Y. GR**, and **UN**.
	$\overline{\text{BT}}$	Text is in code	Procedure signs **$\overline{\text{BT}}$**, **II**, and **$\overline{\text{IM}}$**.
Office reference No	1721	Originated by Office assigned number 17 on 21st day of current month.	
	II	Break	
Text	**ABCD**	Code group	
	II	Break	
	EFGH	Code group	
	II	Break	
Time of origin No	2013	Dispatch written 8.13 p. m.	
	II	Break	
	$\overline{\text{IM}}$	Repeat	
	II		

Example of a dispatch—Continued.

Parts of the dispatch.	The dispatch as transmitted.	Significance.	Position of prescribed procedure signs when their use is required.
	T		
	II		
	B 40		
	V		
	B 35		
	II		
	GR 4	Dispatch repeated. (Being in code.)	
	BT		
	1721		
	II		
	ABCD		
	II		
	EFGH		
	II		
	2013		
	II	Break	
	TOR	Time of receipt	
	II	Break	
Time of receipt	2042	Received on the New York at 8.42 p. m.	
End of dispatch	AR		Procedure signs B, Q, AR, VA.

GENERAL INSTRUCTIONS.

Question. What system is to be used in answering or repeating a dispatch?

Answer. The unit replying to or repeating a dispatch shall use the same system in which it is sent, unless it is clearly impracticable to do so.

Question. What conditions should govern the selection of the system in sending dispatches?

Answer. The system selected will depend upon the importance of the signal or dispatch, the number of units addressed, the distance the signal or dispatch must be transmitted, and conditions affecting visibility. The system selected should be the one which would interfere least with other signaling, if there be any, yet sufficient to insure attracting attention promptly.

Question. What means is employed to attract attention.

Answer. Any means of attracting attention may be used which does not interfere with the purport of the signal or dispatch.

Question. Should it become necessary at any time to annul a signal during its transmission, or even while the signal "execution" is being displayed, what is to be done?

Answer. It is merely necessary to send **N** (negative) as a general signal, using a different system of transmission (or second blinker tube), following the prescribed procedure.

Question. In calling out the letters and signs for the recorder, how is accuracy obtained?

Answer. They are to be called out by their names, as "Boy," not "B"; "Roger," not "R"; "Received sign," not "R."

Question. From whom are signals considered to emanate and to whom to be addressed on board ship?

Answer. They are considered to emanate from the senior officer of the unit of origin and to be addressed to the senior officer of the unit to which they are addressed.

Question. What are the principal methods of transmitting signals?

Answer. Flag hoist, flashing light, and radio.

Question. What secondary methods are available?

Answer. Semaphore, wigwag, sound, pyrotechnic, etc.

Question. In order to meet the requirements of each of the three principal methods of transmitting signals, what equivalent has each letter, numeral, and special sign?

Answer. Each letter, numeral, and special sign has a name, a flag or pennant equivalent, and a dot and dash equivalent.

Question. In transmitting signals by flashing light (or by other means employing the dot and dash characters), what is necessary in order that the receiving unit may read a signal correctly?

Answer. A decided pause should be made between repetitions of signals in order to avoid running the repetitions together, and thus causing the receiving unit to read a signal other than the one intended.

Question. How would you illustrate this?

Answer. In sending the signal **BCD**, it should be sent **BCD** (decided pause), **BCD** (decided pause), **BCD** (decided pause), etc., and not **BCDBCDBCD**, etc., for in the latter case the receiving unit might possibly read the signal **CDB** or **DBC** (particularly if the first letter or first two letters were missed), thus reading a signal entirely different in meaning from the one being sent.

DISPATCHES.

Question. What is the character of all dispatches transmitted by visual methods considered to be and from whom are they considered to emanate and to whom to be addressed?

Answer. Unless otherwise indicated they are considered to be official and to emanate from the senior officer on board the ship of origin and to be addressed to the senior officer on board the receiving unit.

Question. Is each dispatch required to have a specific address and signature?

Answer. No; except that dispatches intended for the commanding officer of a ship, which is a flagship, shall be prefaced "To shipsig," and dispatches from the commanding officer of a ship which is a flagship shall be prefaced "From shipsig."

Question. How are unofficial dispatches prefaced?

Answer. By the letters **UN** followed immediately by the name of the addressee and the name of the originator; thus, "**UN** for Captain Smith from Captain Jones." No unofficial dispatch shall be sent unless signed by and addressed to an officer, except by special permission in each case.

Question. How are dispatches identified?

Answer. By their "office reference number and date group" and the "time of origin number."

Question. In acknowledging a dispatch, how is it referred to?

Answer. By "office reference number and date group" (if used) and "time of origin number," as **Y 0327 H 1751.**

Question. What is necessary in dispatches which it is desired to have acknowledged?

Answer. They should contain the procedure sign **Y** in the prefix.

Question. How often is any dispatch in code to be transmitted?

Answer. It is to be sent twice, i. e., immediately upon completion of the first transmission the repeat sign, **IMI**, is to be made, and the complete dispatch again transmitted. When the letter **C** or the letter **G** is used for the purpose of checking or repeating back a code dispatch, the dispatch is to be transmitted only once in such cases.

FLASHING LIGHT METHODS OF TRANSMISSION.

Question. In systems using the flashing-light method of transmission, what are used?

Answer. The International Morse alphabet and numerals and special Morse signs are used.

Question. How are the characters made?

Answer. By alternately exposing and obscuring the light, a short flash representing the "dot" and a long flash the "dash." The characters should be made deliberately and distinctly.

Question. What ratio must the dots and dashes, and the spaces between them, bear?

Answer. A dot is taken as a unit.

A dash is equivalent to three units.

An acknowledging flash is equivalent to six units.

A space between two elements of a letter or sign is equal to one unit. Thus, the letter D (— . .) has three units for the dash, one unit space, one unit "dot," one unit space, one unit "dot."

A space between two complete letters or signs is equal to a dash, or three units.

A space between words, or groups, is equal to two dashes, or six units.

Question. Should this ratio be carefully adhered to?

Answer. Yes; whatever be the rate of transmission. In slow transmission, with heavy searchlight apparatus or with sluggish lights, it is difficult to appreciate the relative length of dots and dashes, and experience has shown it best to accentuate the dots by making them shorter in proportion to the dashes.

Question. When transmitting at night, what is it necessary to do?

Answer. Care must be taken to select a position not in the immediate vicinity of or in line with other lights. All unnecessary lights in the vicinity of the sending station should be turned out.

Question. When are signals by flashing light to be executed?

Answer. (1) On the termination of the 10-second flash of the "execute."

(2) At the time designated in the signal.

(3) On arrival at the position designated in the signal.

(4) In the case of certain signals, as soon as made and received.

Question. What means may be employed in signaling by flashing light?

Answer. (1) Searchlight.

(2) Yardarm blinker.

(3) Blinker tube.

(4) Any other effective method of displaying or projecting light.

Question. How should the searchlight be used?

Answer. At night the beam should be projected where it will be most clearly distinguished by the receiving unit (s), but not directly on the receiver. During daylight the searchlight must be accurately trained on the receiving unit.

Question. To insure this being accomplished, what should be done?

Answer. Signal searchlight should be fitted with a sighting device.

Question. What is the most efficient method of transmitting visual signals long distances?

Answer. The searchlight.

Question. What is the yardarm blinker?

Answer. It is an "all-around" light located at the yardarms and operated by a key on the signal bridge.

Question. When should the blinker tube be used?

Answer. When circumstances render it advisable that a signal light shall not be seen, except in the direction of the receiver. The tube must be pointed directly at the receiver. When less brilliancy is required, as on clear, dark nights, the light may be dimmed by veiling it with one or more thicknesses of bunting; this veil should be inserted well down the tube, in order that radiance from it shall not be visible laterally.

Question. What procedure is prescribed for dispatches transmitted by flashing light when transmitting to one unit?

Answer.

TRANSMITTING UNIT.	RECEIVING UNIT.
(1) Makes call of unit for whom dispatch is intended several times or until repeated.	(1) Repeats call as made by transmitting unit.
(2) Makes own call until repeated.	(2) Repeats call as made by transmitting unit (transmitting unit's call).
(3) Makes break (II).	(3) Answers with a flash.
(4) Makes **GR** followed by the number of words or groups.	(4) Answers with a flash.
(5) Makes **II** if text is in plain language; **$\overline{\text{BT}}$** if text is in code.	(5) Answers with a flash.
(6) Transmits text of dispatch (including office and date number and time of origin number).	(6) Answers each word or group with a flash.
(7) Makes "finale" sign **$\overline{\text{(AR)}}$**, or	(7) If dispatch has been received makes **R II $\overline{\text{VA}}$.**
(8) If there are further dispatches to transmit to the same receiving unit, transmitting unit makes **$\overline{\text{AR}}$ II B.**	(8) Receiving unit answers **B** with **R II K** or **R II Q**, as circumstances demand.

Question. Where is the proper location of prescribed procedure signs indicated when their use is required?

Answer. In the example illustrating the various parts of a dispatch (flashing light method, p. 213).

Question. When transmitting to one unit what does the omission of the answering flash indicate?

Answer. It indicates that the word or sign just made was not received and that repetition is desired. The transmitting unit should repeat the last word or sign immediately.

SEMAPHORE.

Question. What is the semaphore system?

Answer. It is the standard system of transmitting dispatches during daylight for short and medium distances.

Question. Under ordinary circumstances would it be used for the transmission of signals?

Answer. It would not; but it may be used either as the primary method of transmission or as a secondary method to supplement flag signals then displayed.

Question. Describe the flags used in transmitting messages by semaphore.

Answer. It employs two hand flags, from 15 to 18 inches square, and either blue and white similar to the International flag P or red and yellow similar to the International flag O, the color to be used which affords the better contrast to the background. Each flag should be attached to a light staff about 2 feet long.

Question. What attention should be paid to the background when using semaphore?

Answer. The sender should select a background giving the greatest contrast. Except under special conditions of light and when the sun is in line with and back of the sender, the sky affords the best background.

Question. What care must be exercised in sending semaphore dispatches?

Answer. The arms must be placed at the exact positions indicating the letters, a distinct pause being made at each position and the arms moved from position to position by the shortest route.

Question. How is the semaphore alphabet printed?

Answer. As the characters appear with the sender facing the receiver. Thus the character **B** is with the right arm extended horizontally.

Question. How are the numbers sent by semaphore?

Answer. Numbers should always be spelled out.

Question. What is the "break" sign in semaphore?

Answer. The flags crossed in front of the center of the body, as shown in the plate.

Question. What is the answering sign in semaphore?

Answer. The right-hand flag extended vertically upward and the left-hand flag extended upward at an angle of about 45°, as shown in the plate.

Question. What procedure signs ordinarily are used in semaphore?

Answer.

Error	**E** agitated.
Interrogatory	**INT.**
Code follows	**BT.**
Signals follow	**IM.**
Number of words or groups	**GR** (followed by number spelled out).
End of word	Break.
End of sentence (full stop)	**AAA** (three A's).
End of dispatch	**AR.**
Repeat all before word	**IMI** break **AB** break (word).
Repeat all after word	**IMI** break **AA** break (word).
Repeat word after word	**IMI** break **WA** break (word).
Received (and communication finished).	**R** break **VA** used only when call flags are not used. When call flags are used the hauling down of the call signifies "dispatch received."
Move to your right	**MR.**[7]
Move to your left	**ML.**[7]
Move up	**MU.**[7]
Move down	**MD.**[7]

Question. How would you call a ship or unit by flag hoist for a semaphore signal or dispatch?

Answer. Hoist the call of the ship or unit for whom the signal or dispatch is intended, "two-blocked" (unless it is necessary to make such a call while flag signals are displayed at the same yardarm, in which case the call may be hoisted at the dip).

Question. How does a unit so addressed answer?

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[7] May be used in wigwag also.

Answer. By hoisting the call of the calling ship or unit over the answering pennant (1) at the "dip," as soon as seen, and until ready to receive; (2) two-blocked when ready to receive.

Question. What should be done to enable the receiver to locate the signalman?

Answer. The "attention" sign should always be made by the transmitting unit when several signalmen are sending to a large number of units, to give the receiver an opportunity to locate the sending signalman.

Question. How would you call a ship or unit without flag hoist for a semaphore signal or dispatch?

Answer. There is no equivalent for the call pennants in semaphore. When it is not practicable to call by flag hoist, and the "attention" sign is not sufficiently definite, three or four letters abbreviating the unit's name will be used as a call.

Question. How will the unit addressed answer?

Answer. It makes the "answering" sign, and if that be not sufficiently definite, the three or four letters abbreviating the name of the unit answered.

Question. How may you be assured that a semaphore message has been received?

Answer. Any desired degree of assurance that the signal has been received may be attained by the use of prescribed procedure signs. Thus, if the call is followed by—

(1) **G**, the receiving unit will repeat back.
(2) **Y**, the receiving unit will acknowledge.
(3) **G** and **Y**, the receiving unit will repeat back and acknowledge.

Question. What procedure signs are used in semaphore?

Answer. The procedure signs prescribed for Morse are to be used when required. When used, their position in the dispatch corresponds to their position when used in systems employing Morse.

Question. What procedure is prescribed for the transmission of dispatches by semaphore?

Answer. The procedure is as follows:

TRANSMITTING UNIT.	RECEIVING UNIT.
(1) Makes call, either by flag hoist and attention, by "attention" alone, or by attention followed by letter or letters abbreviating the name of the unit for whom the dispatch is intended.	(1) If the call be by flag hoist, answers call by hoisting answering pennant under the call of the transmitting unit at the dip, as soon as seen, and two-blocked when ready to receive and record. If the call be other than flag hoist, makes the "answering" sign, followed, if necessary, by three or four letters abbreviating the name of the transmitting unit.
(2) When confusion might arise as to which unit the dispatch is being transmitted, makes the letters abbreviating the name of the receiving unit. When there is no possibility of confusion this may be omitted.	(2)
(3) Makes break.	(3)
(4) Makes GR followed by number of group or words.	(4)
(5) Makes break.	(5)
(6) Makes BT followed by "break," if text is in code.	(6)
(7) Proceeds with text of dispatch, all numbers being spelled out.	(7) When the call and answer is by flag hoist, the answering pennant is to be dipped immediately a word or sign is missed. If the call be other than by flag hoist, makes repeat (IMI).
(8) Makes break.	(8)
(9) Makes AR, and hauls down the flag call if used.	(9) Acknowledges the receipt of the dispatch (*a*), if the call and the answer be by flag hoist, by hauling down the answering pennant when the transmitting unit hauls down the call; (*b*) if the call and answer be other than by flag hoist, makes "R break VA."

Question. How is the failure to receive a word or sign indicated?

Answer. (1) If the call and answer be by flag hoist, by the receiving unit dipping the answering pennant.

(2) If the call and answer be other than by flag hoist, by the receiving unit making the repeat sign IMI.

Question. On receipt of a dispatch, if the call and answer be by flag hoist, what does the receiving unit do?

Answer. It hauls down the answering hoist.

Question. If during the sending of the dispatch the receiving unit fails to receive any part of it for any reason, such as sender becoming obscured by smoke, etc., what should the receiving unit do?

Answer. It should dip the answering pennant. The sending unit should then dip the call. When the receiving unit is again ready to receive, she should two-block the answering pennant. The sending unit should then two-block the call and proceed with the dispatch starting with and repeating the last two or three words transmitted before the answering pennant was dipped.

Question. If the receiving unit requires more than the last word or sign to be repeated, what should it do?

Answer. It should make the appropriate procedure sign for repeating the required portion.

WIGWAG.

Question. What alphabet, etc., is employed in wigwag?

Answer. The International Morse alphabet, numerals, and special Morse signs.

Question. How is a dot and a dash represented?

Answer. A motion through an arc of 90 degrees to the sender's right represents a "dot" and a similar motion to the left a "dash."

Question. What signs are peculiar to wigwag?

Answer. The only signs peculiar to wigwag are:

(1) The "attention" sign, i. e., the flag waved back and forward overhead.

(2) The "break" sign, i. e., a motion to the front.

Question. What may be used in signaling by wigwag?

Answer. A hand flag, a hand light, or a searchlight beam.

Question. What should the sender do in sending a message?

Answer. He should face the receiver squarely. The motions for the dot and dash should be made at right angles to the line of transmission, and for the "break" from the vertical position through an arc of 135° in the direction of the line of transmission.

Question. What should be done to keep the flag fully exposed?

Answer. The point of the staff should be made to describe an elongated figure 8.

Question. What is desirable in case a hand light is used?

Answer. It is desirable to have a reference light at the sender's feet.

Question. How may an oil lantern be used?

Answer. It may more conveniently be swung outward and upward.

Question. What is it important to do in sending by wigwag?

Answer. It is important to obtain a good background and to select a flag the colors of which present the most marked contrast with the background.

Question. How may the prescribed calls be supplemented?

Answer. The prescribed calls may be supplemented by flag-hoist calls, as in semaphore. The procedure prescribed for semaphore shall be followed.

Question. Can wigwag be seen as far as semaphore?

Answer. A large wigwag flag against a good background may be read at a greater distance than semaphore.

SOUND.

Question. For what is sound signaling prescribed?

Answer. For use in thick weather under circumstances where the use of radio is inadvisable and when such signals will not be confusing to strangers in connection with the "rules of the road," or confusing to our own ships in connection with the "rules of the road" or emergency signals.

Question. How may sound signals be made?

Answer. On the whistle, fog horn, or similar sound-producing apparatus. The Morse alphabet and special signs are used.

Question. In using the steam whistle, what is necessary before starting?

Answer. To see that condensed steam is blown clear.

Question. In sound signals, what represents a "dot" and what a "dash"?

Answer. A short blast of the whistle or single stroke of a bell represents a "dot," a longer blast or two short strokes in quick succession represents a "dash." Care must be taken in the spacing or interval between blasts or strokes.

Question. Should two or more ships within hearing of each other attempt sound signaling at the same time?

Answer. Not if by so doing they cause interference with one another.

Question. What procedure is prescribed for signals by sound?

Answer. When signaling to one ship direct the following procedure is prescribed.

TRANSMITTING SHIP.	RECEIVING SHIP.
(1) Makes call of ship or unit for whom signal is intended several times, or until repeated.	(1) Repeats call as made by transmitting ship.
(2) Makes own call several times, or until repeated correctly.	(2) Repeats call as made by transmitting ship (transmitting ship's call).
(3) Makes signal sign (. . — — —).	(3)
(4) Makes complete signal, as a group of letters, numerals, or signs.	(4)
(5) Makes "finale" sign (. — . — .).	(5)
(6) Waits an appreciable interval for the **R** or for the IMI,	(6) If signal is understood makes **R** (received). If signal is not understood makes repeat (IMI) several times until signal is repeated.
(7) When the **R** has been received makes IX IX several times as a preliminary signal of execution, then a 10-second blast, the termination of which is the final signal of execution.	(7)

Question. What procedure is prescribed for the transmission of dispatches by sound?

Answer. The procedure prescribed for the transmission of dispatches by flashing light shall be followed.

Question. Should the transmitting ship fail to receive the acknowledging blast after a reasonable wait, what should it do?

Answer. It shall repeat the word, group, or sign last made until acknowledged. This procedure insures the receipt of a dispatch part by part and reduces not only the probability of a complete repetition, but saves the time required for making the requests for repetitions.

Question. After the transmission of the dispatch, may the receiving unit request a repetition?

Answer. It may request a repetition of any part or all of the dispatch by using the "repeat" sign.

SHAPE SIGNALS.

Question. For what are shape signals intended and when may their use become important?

Answer. Shape signals are primarily long-distance signals. They may become of importance when it is inadvisable to use radio, and when a ship is not fitted with or can not use searchlights, and when atmospheric or light conditions make it impossible to distinguish the colors of flags.

Question. Where would you find detailed instructions for the use of shape signals?

Answer. Detailed instructions for the use of shape signals and a shape-signal code sufficient for general use are prescribed in the International Signal Book and in the Allied Fleet Signal Book.

INTERNATIONAL CODE OF SIGNALS.

(The International Code Signal Book shall be studied and consulted for complete detailed instructions as to the use of the International Code.)

Question. What is the International Code of Signals?

Answer. A system of signals which has been adopted by all nations in order that all vessels may have a method of signaling to each other, each particular hoist having the same meaning in all languages.

Question. Of how many flags does the code consist?

Answer. Of 26 flags—one for each letter of the alphabet—and the code flag, which is also used as an answering pennant.

Question. Of what shapes are these flags?

Answer. There are 2 swallowtails, **A** and **B**; 5 pennants, **C**, **D**, **E**, **F**, and **G**; and 19 square flags, representing the remaining letters of the alphabet. The code flag is also a pennant.

Question. Have these flags been given other names than the letters they represent; and if so, for what purpose?

Answer. In the Navy and the Coast Guard each flag has been given a distinctive name, in order to avoid confusing the names of the various letters in reporting signals and in calling out signals. They must also be used in repeating such signals over the telephone.

Question. What are these distinctive names?

Answer. They are as follows:

A.....Affirmative	**J**.....Jig	**S**.....Sail
B.....Boy	**K**.....King	**T**.....Tare
C.....Cast	**L**.....Love	**U**.....Unit
D.....Dog	**M**.....Mike	**V**.....Vice
E.....Easy	**N**.....Negative	**W**.....Watch
F.....Fox	**O**.....Optional	**X**.....X-ray
G.....George	**P**.....Preparatory	**Y**.....Yoke
H.....Have	**Q**.....Quack	**Z**.....Zed
I..... Interrogatory	**R**.....Roger	

Question. Into how many parts is the code book divided, and what does each contain?

Answer. Into three parts. The first part contains urgent and important signals, compass signals, the numeral table, and all the tables of moneys, weights, measures, barometric heights, etc., together with a geographical list and a table of phrases formed with auxiliary verbs. The second part is an index, which consists of a general vocabulary and a geographical index, and is arranged alphabetically. The third part gives lists of the United States storm warnings, Coast Guard, time signal, radio, and radio time-signal stations, and of Lloyd's signal stations of the world. It also contains semaphore and distant signal codes, the United States Army and Navy dot-and-dash and semaphore codes, and the Morse wigwag code.

Question. Explain the method of signaling by the International Code.

Answer. Suppose a ship wishes to signal a station: She would first hoist her ensign with the code flag under it. The station would reply by hoisting the code flag at the "dip." The ship would then hoist the first signal of her message, first hauling down her code flag if required in making the signal. When this signal is looked up in the code book, understood, and recorded, the station will then hoist the answering pennant (code flag) "close up" and keep it there until the ship hauls her signal down when the station will lower the answering pennant to the "dip" again and await the next signal.

Question. What do you understand by the "dip"?

Answer. A flag is at the "dip" when it is hoisted about two-thirds of the way up; that is, some little distance below where it would be if hoisted "close up."

Question. Where should the answering pennant be hoisted?

Answer. Where it can best be seen.

Question. Suppose the ship makes a signal which is not understood; what would you do?

Answer. I would keep the answering pennant at the "dip" and would hoist the signal **OWL** or **WCX** or such other signal as would meet the case and keep it flying until the ship has rectified or repeated her signal and I understand it. I would then haul down the signal **OWL** or **WCX** or other signal used and would hoist the answering pennant "close up."

Question. What do the signals **OWL** and **WCX** mean?

Answer. **OWL** means "I can not make out the flags; hoist the signal in a better position"; **WCX** means "Signal not understood, though the flags are distinguished."

Question. How would you call up a ship with which you wished to communicate?

Answer. By hoisting her signal number, if known. If the ship's signal number is not known I would make use of one of the signals between **DI** and **DQ** on page 37 of the code book.

Question. How many flags are there in each hoist of the International Code?

Answer. From one to four.

Question. How many and what are the one-letter signals?

Answer. There are seven, as follows: **B, C, D, L, P, Q, S.**

Question. What meaning has each of the one-letter signals?

Answer. **B**—I am taking in (or discharging) explosives.

C—Yes, or affirmative.

D—No, or negative.

L—I have (or have had) some dangerous infectious disease on board.

P—I am about to sail; all persons report on board.

Q—I have a clean bill of health, but am liable to quarantine.

S—I want a pilot.

Question. Is the code flag ever hoisted over these one-letter signals; and if so, does it change the meaning?

Answer. It may be hoisted over any of them, but does not change its meaning.

Question. Is the code flag ever hoisted under a one-letter signal?

Answer. No.

Question. Is the code flag ever hoisted over any other one-letter signal of the alphabet than the seven named above?

Answer. It may be hoisted over any other letter of the alphabet, and the signal thus made has the meaning given it on page 7 of the code book.

Question. What do you understand by the term "code signal"?

Answer. A code signal is any signal found in the code book.

Question. Can any other than code signals be sent by the International Code?

Answer. Yes; numbers or words not in the code book may be sent by special signals which are not code signals.

Question. How are these special signals known?

Answer. They are preceded and followed by signals known as alphabetical signals or numeral signals, as the case may be.

Question. Name the alphabetical signals and give their meanings.

Answer. Code flag over **E**—Alphabetical signal No. 1, indicating that the flags hoisted after it until alphabetical signal No. 3 or numeral signal No. 1 is made do not represent the signals in the code, but are to be understood as having their alphabetical meanings and express individual letters of the alphabet which are to form words.

Code flag over **F**—Alphabetical signal No. 2, indicating the end of a word made by alphabetal signals or a dot between initials.

Code flag over **G**—Alphabetical signal No. 3 indicating that the alphabetical signals are ended; the signals which follow will be found in the code in the usual manner.

Question. Name the numeral signals and give their meanings.

Answer. Code flag over **M**—Numeral signal No. 1, indicating that the flags hoisted after it until numeral signal No. 3 or alphabetical signal No. 1 is made do not represent the signals in the code, but express figures as indicated in the table on page 32, and have the special numerical values there given them.

Code flag over **N**—Numeral signal No. 2, indicating the decimal point.

Code flag over **O**—Numeral signal No. 3, indicating that the numeral signals are ended; the signals which follow will be found in the code in the usual manner.

Question. Where will a signal be found in the code book?

Answer. If it be a three-letter signal between **CXA** and **ZNT**, it will be found in the general vocabulary, Part II of the code book; any other code signal will be found in the proper table in Part I of the code book.

Question. How would you proceed to find signals representing the message to be sent?

Answer. I would look for the message under its most important word, and if found there I would take the letters to the left and abreast the message as the signal. For instance, in the message "I shall stand about to see if I can pick up anything from the wreck," the most important word is "wreck," and under it I would find the message, and abreast the latter the letters **ZIT**, which would be the proper signal.

Question. Suppose the word you selected as the most important did not give you the information desired, what would you do?

Answer. I would look for it under some other word that I considered important, such as "pick" or "stand." It would be useless to

look for it under such words as "if," "to," "about," "from," etc.

Question. Suppose the message is "Vessel seriously damaged; want immediate assistance" and can not be found as a whole under any of its words, what would you do?

Answer. I would look up the signal for each separate word if necessary.

Question. Tell how you would look up the signal for a word.

Answer. I would look through the words at the tops of the pages in the general vocabulary until I found the word or the word nearest to it and would then look down that page until the word was found. Abreast of it to the left would be the signal.

Question. What is it necessary to know in order that signals may be read quickly and correctly?

Answer. It is necessary to know the flags instantly and correctly; to know the kind of signal by the hoist; that is, by the number of flags in it and the upper flag (or the lower flag, if the code pennant); and, thirdly, it is necessary to know where in the code book the meaning of each class of signals may be found.

Question. What are two-letter signals?

Answer. Urgent and important signals.

Question. What letters are used for these signals?

Answer. From **AB** to **ZY**.

Question. Is the code flag ever hoisted over or under two-letter signals; and if so, does it change their meanings?

Answer. Yes. It may be hoisted either over or under two-letter signals, and when so hoisted changes their meanings entirely.

Question. Name the kinds of signals which are made with the code flag over two-letter signals.

Answer. Latitude and longitude, divisions of time and of latitude and longitude; barometer and thermometer signals.

Question. What kind of signals are made with the code flag under two letter signals?

Answer. Numeral table signals.

Question. What are three-letter signals?

Answer. Compass signals, moneys, weights, and measures signals, decimals and fractions, auxiliary phrases, and general signals.

Question. What letters represent compass signals?

Answer. From **ABC** to **AQC** are compass signals in degrees; and from **AQD** to **AST** are compass signals in points and half points.

Question. What letters are used for moneys and for weights and measures signals?

Answer. **ASU** to **BCN**.

Question. What letters are used in signaling decimals and fractions?

Answer. From **BCO** to **BDZ**.

Question. What letters are used in signaling auxiliary phrases?

Answer. From **BEA** to **CWT**.

Question. Where are the three-letter general signals found?

Answer. In the general vocabulary in Part II of the code book.

Question. Between what letters do they occur?

Answer. From **CXA** to **ZNT**.

Question. Is the code flag ever hoisted over or under a three-letter signal?

Answer. No.

Question. What signals are made with four-letter hoists?

Answer. Geographical signals, alphabetical spelling table, and vessels' numbers.

Question. How are these signals distinguished from one another?

Answer. By the upper flag of the hoist.

Question. What flag is uppermost in geographical signals?

Answer. Either of the swallowtails, **A** or **B**.

Question. What flag is uppermost in alphabetical spelling-table signals?

Answer. The pennant **C**.

Question. What flag is uppermost in vessels' numbers?

Answer. The pennant **G** for names of Government vessels; any square flag for names of merchant vessels.

Question. At the present time what square flags are used for the upper flag of the hoist for American merchant vessels and yachts?

Answer. The letters **H**, **J**, **K**, and **L**.

Question. Where would you look for an American merchant vessel's number if her name is known?

Answer. I would look for her official number in the latest "List of Merchant Vessels of the United States," in which the names of American merchant vessels are arranged alphabetically under the headings: Sailing, steam, and unrigged vessels.

Question. If an American merchant vessel's number only is known, where would you look for her name?

Answer. In the latest edition of the "Seagoing Vessels of the United States," in which the signal letters are arranged alphabetically under the headings: "Seagoing vessels" and "Yachts."

Question. Where would you look for the signal letters of vessels belonging to the Government of the United States?

Answer. In the latest edition of "Seagoing Vessels of the United States."

Question. What vessels of the United States Government have signal letters assigned them?

Answer. Vessels of the Navy; of the Quartermaster Corps and of the Engineer Corps of the Army; of the Coast Guard; of the Lighthouse Service; of the Coast and Geodetic Survey; of the Bureau of Fisheries; and of the Bureau of Navigation of the Department of Commerce.

Question. Since all of these vessels have the pennant G for the upper flag of the hoist, how can you tell at a glance to which service a vessel belongs?

Answer. By the second or third flag in the hoist.

Question. What flag have vessels of the Navy for the second letter of the hoist?

Answer. Some letter between B and T, both inclusive.

Question. What flag have vessels of the Army for the second letter of the hoist?

Answer. They have the letter W.

Question. What flag have all other Government vessels for the second letter of the hoist?

Answer. They have the letter V.

Question. How can you distinguish a vessel of the Coast Guard by her signal letters?

Answer. She has for the third letter of the hoist following GV some letter between B and K, both inclusive.

Question. Where would you look for the radio call letters of vessels, both Government and merchant, of the United States?

Answer. In the publication "Seagoing Vessels of the United States."

Question. How many geographical lists are in the code book?

Answer. Two. One in Part I; the other in Part II.

Question. When is each used?

Answer. When reading a geographical signal which has been made, the list in Part I is used, because the signal letters are there arranged alphabetically and easily found. When signaling the name of a place the list in Part II is used, because there the names of the places are arranged alphabetically.

Question. What kind of letters are used in alphabetical spelling-table signals?

Answer. Consonants only are used.

Question. How many letters does any signal in the alphabetical spelling table represent?

Answer. Each signal represents either two or three letters, which are to be used in forming a word.

Question. Where would you find the code signal for one letter?

Answer. In the general vocabulary in Part II of the code book. It would be a three-letter signal.

Question. How are words or names not found in the general vocabulary sent by signals?

Answer. They are spelled out.

Question. In how many ways can words be spelled out by signals?

Answer. In two ways. They can be spelled out either by the alphabetical spelling table, which is the old method, or by the new method, in which the alphabetical signals described on page 13 of the code book are used.

Question. In how many ways may numbers be sent by the International Code?

Answer. In two ways. They can be sent either by the numeral table on page 33 or by the alternative method explained on page 32 of the code book.

Question. Suppose you saw a ship standing into danger, what signal would you hoist?

Answer. **JD.**

Question. What next would you do?

Answer. After she has acknowledged that signal or altered her course in obedience to it, I would hoist one of the signals on page 39 (Danger and Distress Signals), directing her how to steer to avoid the danger.

Question. Suppose you set the signal "Steer more to starboard (or to port)," how long do you keep it flying?

Answer. Until her course is sufficiently altered to clear the danger, when I would haul the signal down.

Question. If a vessel is so far away that the colors of the flags of the International Code can not be distinguished, what kind of signals would you use?

Answer. Distant signals.

Question. Under what other conditions would distant signals be used?

Answer. In calms, when the flags hang up and down, or when the wind is blowing toward or from the observer, or when the atmosphere is not clear.

Question. How does a ship ordinarily communicate by distant signals?

Answer. By hoisting certain shapes.

Question. What shapes are used?

Answer. A cone, point upward.

A ball.

A cone, point downward

A drum.

Question. What flags may be substituted for these shapes when weather conditions are favorable?

Answer. A square flag may be substituted for the cone, point upward.

A pennant, for the cone, point downward.

A pennant, with the fly tied to the halyards, or a wheft, for the drum. A wheft is any flag tied in the center.

There is no flag substitute for the ball.

Question. Is there a table of urgent and important distant signals in the code book?

Answer. Yes; the table of "Special Distant Signals," beginning on page 533.

Question. What are the International Signals of Distress to be used in the daytime?

Answer. A gun or other explosive signal fired at intervals of about a minute.

The International Code Signal of Distress indicated by **NC**.

The distant signal, consisting of a square flag, having either above or below it a ball or anything resembling a ball.

A continuous sounding with any fog-signal apparatus.

The distant signal, consisting of a cone, point upward, having either above it or below it a ball or anything resembling a ball. (This is purely a code signal and not one of the signals of distress given in the rules of the road, the needless exhibition of which entails penalties upon the master of the vessel displaying it.)

Question. What are the International Signals of Distress to be used at night?

Answer. A gun or other explosive signal fired at intervals of about a minute.

Flames on the vessel (as from a burning tar barrel, oil barrel, etc.).

Rockets or shells throwing stars of any color or description, fired one at a time at short intervals.

A continuous sounding with any fog-signal apparatus.

Question. Would the ensign hoisted union down be considered a distress signal?

Answer. Yes; and when so displayed it must be investigated, and so must any unusual or excited waving of the arms, flags, or other articles not readily and satisfactorily explainable as other signals, particularly when made from boats under circumstances in which danger to the persons on board is imminent or probable.

Question. May distress signals be used together?

Answer. Yes; they may be used either together or separately.

Question. What are the International Signals for a pilot to be used in the daytime?

Answer. The jack, hoisted at the fore.

The International Code pilot signal indicated by **PT.**

The International Code flag **S**, with or without the code pennant over it.

The distant signal, consisting of a cone, point upward, having above it two balls or shapes resembling balls.

Question. What are the International Code signals for a pilot to be used at night?

Answer. The pyrotechnic light, commonly known as a blue light, every 15 minutes.

A bright white light, flashed or shown at short or frequent intervals just above the bulwarks for about a minute at a time.

Resuscitation of the Apparently Drowned.

Question. What would you first do in attempting to resuscitate an apparently drowned person?

Answer. I would arouse the patient.

Question. How would you arouse the patient?

Answer. I would not move the patient unless in danger of freezing; instantly expose the face to the air, toward the wind, if there be any; wipe dry the mouth and nostrils; rip the clothing so as to expose the chest and waist; give two or three quick, smarting slaps on the chest with the open hand.

Question. What do you mean when you say that you would not move the patient unless he was in danger of freezing?

Answer. I mean that I would not waste time by moving him to a distance or to a place of shelter unless he was in danger of freezing. I would move him a few feet if necessary to get him out of the water or to place him so that I could work on him to better advantage.

Question. Why do you take time trying to arouse him?

Answer. Because this might restore consciousness and render further effort unnecessary.

Question. If the patient does not revive under the effort to arouse him, what would you do?

Answer. I would expel the water from the stomach and chest.

Question. How would you expel the water from the stomach and chest?

Answer. Separate the jaws and keep them apart by placing between the teeth a cork or small bit of wood; turn the patient on his face, a large bundle of tightly rolled clothing being placed beneath the stomach; press heavily on the back over it for half a minute, or as long as fluids flow freely from the mouth.

Question. After expelling the water from the stomach and chest, what would you next do?

Answer. I would attempt to produce breathing.

Question. What is the first step in the attempt to produce breathing?

Answer. To clear the mouth and throat of mucus by introducing into the throat the corner of a handkerchief wrapped closely about the forefinger; this should be done before the patient is turned on his back.

Question. What is the second step?

Answer. To turn him on his back, placing the roll of clothing so as to raise the pit of the stomach above the level of the rest of the body.

Question. What is done with the tongue?

Answer. When the mouth and throat are cleared of mucus, an assistant with a handkerchief or piece of dry cloth draws the tip of the tongue out of one corner of the mouth and keeps it projecting a little beyond the lips.

Question. What is the purpose of this?

Answer. To prevent the tongue falling back and choking the entrance to the windpipe, which would prevent breathing.

Question. What should be done with the patient's arms?

Answer. An assistant should grasp them just below the elbows and draw them steadily upward by the sides of the patient's head to the ground, the hands nearly meeting.

Question. What is the purpose of this?

Answer. It is to enlarge the capacity of the chest and induce inspiration.

Question. All these things are being done as quickly as possible; is anything else being done at the same time?

Answer. Yes; a third assistant takes position astride the patient's body, with his elbows resting upon his own knees, his hands extended ready for action.

Question. What is done next?

Answer. The assistant at the head will turn the patient's arms down to the sides of the body, the assistant holding the tongue changing hands if necessary to let the arms pass. Just before the patient's hands reach the ground, the man astride the body will grasp the body with his hands, the balls of his thumbs resting on either side of the pit of the stomach, the fingers falling into the grooves between the short ribs.

Question. What does the man astride the body do as the patient's hands touch the ground?

Answer. Using his knees as a pivot, he will, at the moment the patient's hands touch the ground, throw not too suddenly, all his weight forward on his hands, and at the same time squeeze the waist between them as if he wished to force anything in the chest upward out of the mouth; he will deepen the pressure while he slowly counts one, two, three, four, about 2 to 2½ seconds, then suddenly let go with a final push, which will spring him back to his first position.

Question. What does this do?

Answer. This completes expiration.

Question. What care should be taken in placing the roll of clothing under the patient's back?

Answer. Care should be taken that it is so placed as not to project beyond the sides of the body and interfere with the patient's arms touching the ground when turned down to the sides of the body, and that it raises the pit of the stomach above the level of the rest of the body.

Question. Where is the pit of the stomach?

Answer. It is the angle formed by the short ribs just below the lower end of the breastbone.

Question. How should the arms be drawn upward and backward?

Answer. They should describe an arc of a circle in a plane parallel to the body, and should be kept extended at all times so as to enlarge the capacity of the chest as much as possible.

Question. Of what does breathing consist?

Answer. Of the inspiration and expiration of breath.

Question. What is inspiration?

Answer. It is the drawing of air into the lungs, and is accomplished by the elevation of the chest walls.

Question. What is expiration?

Answer. It is the act or process of breathing out, or forcing air from the lungs through the nose or mouth. It is the opposite of inspiration.

Question. What is respiration?

Answer. It is the act of breathing, and consists of taking air into and forcing it out from the lungs. It is the combination of inspiration and expiration.

Question. How should pressure be applied over the lower ribs in producing expiration?

Answer. It should be applied inward and upward and not downward.

Question. Will it always be found necessary to change hands in holding the tongue?

Answer. No; after practice it will not be necessary. The tongue must not be released in any event.

Question. How long an interval is required for inspiration and for expiration?

Answer. From 2 to 2½ seconds each.

Question. How often should the movements for inspiration and expiration be repeated?

Answer. The combined movements should be repeated from 12 to 15 times in every minute.

Question. How would you regulate these movements?

Answer. Either by a watch or by counting or by my own inspiration and expiration.

Question. When the man astride the patient's body releases the pressure and springs back to his first position, what is next done?

Answer. The man at the patient's head again draws the arms steadily upward to the sides of the patient's head, as before, the assistant holding the tongue, again changing hands to let the arms pass if necessary, holding them there from 2 to 2½ seconds.

Question. If natural breathing be not restored after about four minutes, what would you do?

Answer. If natural breathing be not restored after a trial of the bellows movement for a space of about four minutes, turn the patient a second time on the stomach, as directed in Rule II, rolling the body in the opposite direction from that in which it was first turned,

for the purpose of freeing the air passages from any remaining water.

Question. How long should artificial respiration be continued?

Answer. From one to four hours, or until the patient breathes.

Question. What would you do upon the appearance of returning life?

Answer. Carefully aid the first short gasps by artificial respiration, timed with the patient's breathing, until deepened into full breaths.

Question. In addition to the artificial respiration, what other aids should be applied?

Answer. Drying and rubbing should be unceasingly practiced from the beginning by assistants, taking care not to interfere with the means employed to produce breathing.

Question. How should the limbs of the patient be rubbed?

Answer. Always in an upward direction toward the body, with firm grasping pressure and energy, using the bare hands, dry flannels, or handkerchiefs, continuing the friction under blankets or over dry clothing.

Question. How may the warmth of the body be promoted?

Answer. By the application of hot flannels to the stomach and armpits, bottles or bladders of hot water, heated bricks, etc., to the limbs and soles of the feet.

Question. How should a child or delicate person be handled?

Answer. More gently than a robust patient.

Question. What aftertreatment should be employed externally?

Answer. As soon as breathing is established the patient should be stripped of all wet clothing, wrapped in blankets only, put to bed comfortably warm, but with a free circulation of fresh air, and left to perfect rest.

Question. What aftertreatment should be given internally?

Answer. Give aromatic spirits of ammonia, or hot tea or coffee, in doses of a teaspoonful to a tablespoonful, according to the weight of the patient, or other stimulant at hand, every 10 or 15 minutes for the first hour, and as often thereafter as may seem expedient.

Question. What danger is there to the patient after reaction is established?

Answer. There is great danger of congestion of the lungs, and if perfect rest is not maintained for at least 48 hours it sometimes occurs that the patient is seized with great difficulty of breathing, and death is liable to follow unless immediate relief is afforded.

Question. What would you do in such cases?

Answer. Apply a large mustard plaster over the breast. If the patient gasps for breath before the mustard takes effect, assist the breathing by carefully repeating the artificial respiration.

Question. What outside assistance would you call upon in resuscitating the apparently drowned?

Answer. Always send for or call a physician, if one be available.

Question. If no assistance is at hand and you have to work alone, what is the first thing you would do in attempting to resuscitate an apparently drowned person?

Answer. I would turn the patient on his abdomen, face downward, with the arms extended beyond the head in line with the body.

Question. What would you next do?

Answer. I would examine and clear the mouth and throat of mucous and see that the air passages are not obstructed by any foreign matter. I would then place the patient's head and arms in position, the left side of the head resting on the ground and the tongue protruding, with the arms from the shoulder to the elbow extended sideways. I would then place the patient's feet together.

Question. How would you produce artificial respiration working alone?

Answer. I would kneel, or squat, by the side or astride of the patient and place my hands slightly above the small of the patient's back, one hand on each side of the backbone, with my thumbs about one inch apart and parallel with the backbone, the fingers well spread and extending toward the sides of the body, the little fingers being slightly above the floating ribs. Then I would lean forward steadily, allowing my weight to fall evenly on both hands, arms straight, and without effort, compress the body downward and slightly forward for a period of about 3 seconds, taking care that the hands did not slip backward and that the arms did not go beyond the perpendicular. At the end of this period I would, still keeping the arms straight and without lifting the hands from the patient, release the pressure and swing back smartly, well on my heels. The complete movement should occupy from 4 to 5 seconds and should be repeated from 12 to 15 times a minute. I would work smartly, but not roughly, and watch the patient closely for any signs of consciousness or returning breathing.

Question. When working alone, how long should artificial respiration be continued?

Answer. From one to four hours, or until the patient breathes.

Question. In practicing Rule II how would you keep the patient's mouth out of the sand?

Answer. Place his face on his forearm so as to keep the mouth and nose free.

Question. What precautions should be taken to insure a free circulation of fresh air?

Answer. Prevent witnesses crowding around, especially on the weather side of the patient.

Question. What should be taken from the station when proceeding to the place where an apparently drowned person is?

Answer. Medicine chest, roll, piece of wood with lanyard attached, hot-water bottles, flannel, handkerchief, blanket, bricks, and bucket of hot water if the place is near.

Question. Where should these articles be kept?

Answer. In a handy place, neatly stowed, where they would be instantly accessible at all times.

Question. Give Rule I for resuscitating the apparently drowned.

Answer. (See directions for restoring the apparently drowned.)

Question. Give Rule II for resuscitating the apparently drowned.

Answer. (See directions for restoring the apparently drowned.)

Question. Give Rule III for resuscitating the apparently drowned.

Answer. (See directions for restoring the apparently drowned.)

Question. Give Rule IV for resuscitating the apparently drowned.

Answer. (See directions for restoring the apparently drowned.)

Question. Give the rules for restoring the apparently drowned when one person must work alone.

Answer. (See directions for restoring the apparently drowned.)

Saving Drowning Persons.

Question. What preparation should you make before jumping in to save a drowning person?

Answer. I should divest myself as far and as quickly as possible of all clothing, tearing it off if necessary. If there is not time to remove all of my clothing, I would at least loosen the feet of my drawers, if they are tied, so they will not fill with water and drag me down. If there are any objects lying about that can be thrown to the person, such as a life buoy, wooden box, or other buoyant object that will help to keep the person afloat, I would throw it to him before jumping in to his relief.

Question. What assurance should you give a drowning person on approaching him?

Answer. Assure him in a loud and firm voice that he is safe.

Question. In making a rescue what is it important for you to do?

Answer. It is important to retain my presence of mind and a clear, cool head, and to keep at a safe distance until the person is nearly exhausted.

Question. Suppose the drowning person is struggling, what would be your first care?

Answer. Not to get close enough for him to take hold of me, as that would be running too great a risk, but to keep off a few seconds until he gets quiet.

Question. When he gets quiet what should you do?

Answer. Approach him from behind. Get close to him and take fast hold of the hair of his head, turn him as quickly as possible on his back, and give him a sudden pull which will cause him to float; then I would throw myself on my back and swim, holding his hair by both hands.

Question. What would be the position then of the person you are saving and of yourself?

Answer. We would both be on our backs, and his back would be toward my stomach.

Question. Why would you adopt this method?

Answer. Because I could get him to safety by it sooner and with less danger than by any other unaided method.

Question. What other advantages has this method?

Answer. It enables me to keep my own head up and his also, and besides I could float in this position as long as I pleased or until other assistance is at hand.

Question. Is there such a thing as a death grasp?

Answer. Probably not; but yet it is dangerous to allow a struggling person to take hold of you in the water, as both his life and yours might be endangered thereby.

Question. What may be necessary in order to break the hold of a drowning person?

Answer. In some cases it may be necessary to stop his breathing by putting his head under, by pinching his nose and closing his mouth with your hand, or by striking him with your knee in the pit of the stomach. These methods may seem brutal and should not be resorted to except when necessary to save life.

Question. When is it a mistake to try to swim ashore with a drowning person?

Answer. When you have to stem a strong outgoing tide, or when there is a point of safety which could be reached with less effort.

Question. What is the better method in case you can not make a point of safety?

Answer. To get on your back and float until assistance comes.

Question. How may the position of the body of a person which has sunk to the bottom be located?

Answer. By the air bubbles which rise occasionally to the surface.

Question. What allowance must sometimes be made in locating a body by this means?

Answer. An allowance for the bubbles, in coming to the surface, being carried out of a perpendicular course by the motion of the water in a tideway or stream.

Question. How may a body be recovered from the bottom?

Answer. By diving for it in the direction indicated by the bubbles.

Question. How would you raise a body from the bottom to the surface?

Answer. I would seize the hair of the head with one hand only and use my other hand and my feet in bringing the body and myself to the surface.

Treatment of Frostbite.

Question. Into how many degrees are the local effects of cold known as frostbite divided?

Answer. They are usually divided, according to their severity, into three degrees.

Question. How are these degrees distinguished from one another?

Answer. In the first degree the affected part is painful and the skin is of a dark-red hue. In the second degree the skin is of a bright red or livid hue and blisters form on the surface. In the third degree the affected part is pale, stiff, and brittle.

Question. What is frostbite of the first degree commonly called and among whom does it chiefly occur?

Answer. The first degree or condition is known as chilblain. It occurs chiefly among children or poorly nourished persons who are exposed to cold.

Question. What is the effect of severe cold on the blood vessels and tissues of the body?

Answer. Severe cold causes constriction of the blood vessels, and if continued long so that the blood is completely cut off from the part for a considerable time the tissues die.

Question. Describe the effects the application of heat has on each of these cases?

Answer. If heat be applied to a part that has been slightly affected (frostbite, first degree), a sensation of itching and tingling is experienced; if applied to frostbites of the second degree, it causes pain and swelling and the skin may peel off and leave a raw surface. In frostbites of the third degree no reaction takes place upon the application of heat if the part is dead. The dead portion turns black and a line of demarcation appears between it and the living tissue.

Question. What is the danger of applying heat suddenly to a badly frozen part of the body?

Answer. The liability of gangrene (death of the tissue) is increased on account of the intense reaction that takes place in the tissue that is still alive.

Question. What results when the whole body is exposed to severe cold?

Answer. The individual becomes benumbed, exertion is difficult, and drowsiness which can not be resisted overtakes him; the eyesight fails; he totters as he walks, and then falls and becomes unconscious.

Question. What precautions should be taken to protect the body when exposed to severe cold?

Answer. The body should be warmly clad and all parts of it kept as dry as possible, as dampness increases the tendency to frostbite. The ears and face, except the eyes, nose, and mouth should be well covered, especially if snow is falling or a brisk wind is blowing. The hands should also be protected; fur-lined gloves are the best protection, as they are warmer than woolen ones.

Question. What special care should be taken of the feet?

Answer. The shoes should be large. In extreme weather, in case of exposure, it is well to wear two pairs of stockings, a woolen pair over a cotton pair. The feet should be washed each day and a small quantity of oil rubbed into them. A large quantity of oil is harmful, and only such quantity should be used as can be rubbed in well, leaving a dry surface when the rubbing is completed. Clean stockings should be put on each day. Wet stockings should be changed to dry ones whenever practicable. The feet are less

liable to become frost-bitten if the person keeps moving. If he has to stand in one place, the shoe strings should be loosened.

Question. What is the general rule for the treatment of frostbites if a physician is present?

Answer. To follow his instructions.

Question. In case no physician is present, what treatment should be given in the case of frostbite of the first degree?

Answer. The part should be rubbed gently and cloths wrung out of cold, fresh water applied. Snow may be rubbed on the affected part, but it is not as efficient as cold cloths. The rubbing and the applications should alternate, rubbing a few minutes and then applying cloths for a few minutes. The temperature of the water in which the cloths are soaked should be raised gradually until it is lukewarm.

Question. In the case of frostbite of the second degree?

Answer. Rubbing should not be resorted to, as there is danger of increasing the ill effects. Cold cloths should be applied, but the cold treatment must not be kept up too long, as cold prolongs the cause of the injury. The temperature of the water should be raised gradually a degree or two every few minutes, using fresh cloths each time the temperature of the water is changed.

Question. What should be the temperature of the place where treatment is given?

Answer. It should be remembered that reaction takes place naturally as soon as the person is taken indoors out of the cold, even if he be treated in a cold room, and the object of treatment is to prevent this reaction from taking place too rapidly and at the same time not to retard unduly the restoration of vitality.

Question. What do you understand by the term "reaction" in cases of frostbite?

Answer. The return of blood to the part, restoring circulation, sensation, and function.

Question. How can you tell when reaction has set in?

Answer. The affected area, begins to tingle and burn; the blood vessels to dilate, possibly causing swelling of the part; normal color returns; more than likely there will be intense pain.

Question. What treatment is prescribed for frostbite of the third degree?

Answer. The same method should be followed in order to bring about a reaction as in frostbite of the second degree; reaction, however, will not happen in a part that is dead, but the adjacent living

tissue will react, and a red line will form between it and the dead portion.

Question. In what cases is the above treatment unnecessary?

Answer. In cases where reaction has already taken place when the person is first seen.

Question. What treatment should be followed after reaction has taken place?

Answer. After reaction has occurred the patient should be moved into a warm room and an ointment, composed of vaseline 1 ounce, camphor 6 grains, should be applied. The part should then be surrounded with absorbent cotton or wrapped in flannel cloths.

Question. In this treatment what may be used in place of vaseline and camphor?

Answer. Boracic acid ointment.

Question. What should be done in case blisters have formed?

Answer. They should be pricked with a needle and the water allowed to flow out, but the covering of the blisters should not be removed.

Question. What should be done in case gangrene has set in?

Answer. If gangrene occurs, cloths wet with alcohol placed over the part will prevent infection and hasten the separation of the dead part from the living tissue.

Question. What is gangrene and how can you tell when it has set in?

Answer. Gangrene is mortification of a part of the body, caused by interference with the local nutrition. It begins with sharp pains and tenderness of the part, the pain partaking of a severe burning character. At first there is a vivid red discoloration, later turning to purple and black, with green splotches. Swelling soon develops. Disappearance of pain and heat shows that the part is dead, and a fetid odor is soon noticed.

Question. What treatment should be given a person suffering from exposure to a low temperature or from immersion in cold water?

Answer. He should be placed in a cold room and artificial respiration practiced as in the case of an apparently drowned person. The extremities should be rubbed with a solution composed of equal parts of alcohol and water.

Question. How would you proceed when he begins to react?

Answer. When the patient begins to react the temperature of the room should be raised slowly and the patient given hot drinks, such as coffee, tea, or chocolate. If the patient is unable to swallow, a pint of hot coffee or tea should be injected into the rectum.

Question. How long should efforts to restore animation be continued?

Answer. For a long period, as instances are on record of recovery after several hours of suspended animation.

Boat Salutes and Boat Etiquette.

Question. You are in charge of a pulling boat. How do you salute a flag officer of the Navy in another boat with his flag flying?

Answer. Toss oars; stand up and salute with hand; remain at salute until it is returned or the flag officer has passed.

Question. Who is a flag officer of the Navy?

Answer. Any officer of the line of the Navy above the rank of captain.

Question. Suppose the officer to be saluted is a general officer of the Army, with his flag flying, how do you salute?

Answer. The same as for a flag officer of the Navy.

Question. Suppose you are in charge of a laden or of a towing boat, how would you salute a flag officer?

Answer. Make the hand salute only; do not stand up.

Question. If you are in charge of a boat under sail, how do you salute a flag officer?

Answer. Make the hand salute only; do not stand up.

Question. What are the instructions for saluting when you are in charge of a motor boat?

Answer. In motor boats the engines are to be stopped in all cases in which pulling boats "toss" or "lay on" oars.

Question. Suppose a flag officer does not have his distinctive flag flying, how do you salute him?

Answer. Stand up and salute with hand; do not "toss" oars.

Question. You are in charge of a pulling boat. How do you salute a division commander or a commanding officer above the rank of lieutenant who passes in another boat with his pennant flying?

Answer. Lay on oars; stand up and salute with hand.

Question. Suppose you are in charge of a laden or a towing boat or a boat under sail, how would you salute the officer mentioned in the preceding question?

Answer. Salute with hand; do not stand up.

Question. Suppose the division commander or commanding officer is not flying his pennant?

Answer. Rise and salute with hand; do not lay on oars.

Question. How would you salute a commander without a pennant flying?

Answer. Rise and salute with hand; do not lay on oars.

Question. How do you salute commissioned officers other than flag officers and commanding officers above the grade of lieutenant?

Answer. Rise and salute with hand. If in charge of a laden or towing boat or boat under sail, do not stand up.

Question. How do you salute a warrant officer?

Answer. Salute with hand.

Question. You are in charge of a boat of any type, what do you do when a commissioned officer enters or leaves your boat?

Answer. Rise and salute him.

Question. If you are a passenger in the stern sheets of a boat, do you salute on these occasions?

Answer. Yes; rise and salute.

Question. If you are one of the crew of a boat but not in charge, do you salute?

Answer. No; not unless detailed as boat keeper.

Question. What salutes would you render to foreign military or naval officers or officers of the United States Army, Navy, Marine Corps, Public Health Service, Naval Militia, or National Guard?

Answer. Salute them in the same manner as Coast Guard officers of the same rank, or flag officers of the Navy, if of corresponding rank.

Question. What is the "Position of attention" in a boat?

Answer. Sitting erect on the thwarts or in the stern sheets.

Question. What do the members of the crew do when officers enter or leave the boat?

Answer. Sit at attention. This takes the place of a salute.

Question. You are a passenger in a running boat which contains officers, what must you remember?

Answer. To keep quiet.

Question. You are outside the canopy of a motor boat that salutes another boat in passing, what do you do?

Answer. Stand at attention and face the passing boat.

Question. You are in charge of a motor boat containing an officer for whom a salute is being fired, what do you do?

Answer. Stop engine at first gun of salute; head boat up parallel to saluting ship; see that men outside of canopy stand at attention and face the saluting ship.

Question. You are in charge of a boat overhauling another boat that contains officers, what do you do?

Answer. Slow down; never pass without asking permission to do so. Always give way to a senior boat at a landing place or gangway, unless otherwise directed by proper authority.

Question. As warrant officer in charge of a station boat, what reply would you give to the quartermaster's hail in going alongside a Coast Guard or a naval ship at night?

Answer. "No, no."

Question. Suppose you are passing such a ship at night, what answer would you make to the quartermaster's hail?

Answer. "Passing."

Question. What reply should an enlisted person give to the quartermaster's hail in going alongside a Coast Guard or a naval ship at night?

Answer. "Hello."

Question. Suppose there are officers or officials in the boat, what would be the proper answer to the quartermaster's hail?

Answer. It would vary according to the rank of the senior officer or official who may be in the boat.

Question. Suppose the President of the United States is in the boat?

Answer. The answer would be "United States."

Question. Suppose the Secretary or an Assistant Secretary of the Treasury was in the boat?

Answer. The answer would be "Treasury."

Question. Suppose the commandant of the Coast Guard is in the boat?

Answer. The answer would be "Coast Guard."

Question. Suppose other officers than those above mentioned were in the boat?

Answer. If the senior officer in the boat was a division commander, the proper answer to the hail would be "——— division"; if chief of a division at headquarters, the proper answer would be "Headquarters"; if the commanding officer of a vessel, the answer would be the name of the vessel under his command; any other commissioned officers would answer "aye, aye."

Question. You are in charge of a motor boat approaching a Coast Guard or a naval ship at night, or during the day when flag or pennant is not displayed in the bow, or when the rank of the passengers can not be distinguished, how would you indicate their rank?

Answer. By short blasts of the whistle, as follows:

President of the United States	8 blasts.
Secretary of the Treasury	7 blasts.
Assistant Secretary of the Treasury	6 blasts.
Commandant	5 blasts.
Division commander or other officer of the rank of commander	4 blasts.
Commanding officer or officer of the rank of lieutenant commander	3 blasts.
Other commissioned officers	2 blasts.
All other persons	1 blast.

Question. In what order do officers and enlisted persons enter a boat?

Answer. Juniors enter boats ahead of seniors.

Questions. In what order do officers and enlisted persons leave a boat?

Answer. Juniors leave boats after seniors.

Question. Being in charge of a boat, what is your duty while waiting at a shore landing or gangway?

Answer. Haul clear of shore landings and gangways.

Question. What is your duty in regard to the boat's crew?

Answer. Not to permit the crew to leave the boat except by proper authority.

Question. How would you render the hand salute?

Answer. (1) Raise the right hand smartly until the tip of forefinger touches the lower part of the headdress above the right eye, thumb and fingers extended and joined, palm to the left, forearm inclined at about 45°, hand and wrist straight.

(2) The salute being returned, or the officer passed and the salute unobserved, drop the hand quickly by the side.

(3) The left hand is used only when the right hand is engaged.

(4) When saluting, turn the head and eyes toward the person saluted.

(5) The salute should be rendered at 6 paces before passing, or being passed by, an officer, unless the nearest point reached be greater than 6 paces, and not more than 30 paces, in which case salute at the point nearest the officer.

Question. Do men who are in military or division formation salute, even when they are directly addressed?

Answer. No; but if at "rest," they come to attention.

Question. What are the instructions regarding personal salutes ashore?

Answer. (1) All salutes in passing or approaching are begun first by the junior at 6 paces distance or at 6 paces from the nearest point of passing; no salutes, except as otherwise prescribed, are made at a greater distance than 30 paces.

(2) Officers in civilian dress are saluted in the same manner as when in uniform.

(3) Officers will at all times acknowledge the salutes of enlisted men.

(4) When an officer enters a room where there are enlisted men "attention" is called by some one who perceives him; then all rise, remain standing at attention, uncovered, and preserve silence until the officer leaves the room; if at meals, they will not rise.

(5) An enlisted man, being seated and without particular occupation, rises on the approach of an officer, faces toward him, and salutes; if standing, he faces toward the officer for the same purpose. If the parties remain in the same place or on the same ground, such compliments need not be repeated.

(6) If actually at work, men do not cease their occupation to salute an officer unless addressed by him.

Question. What about saluting officers not attached to your own unit?

Answer. Men at all times in all situations pay the same compliments to officers of the Army, Navy, and Marine Corps, to officers of the volunteers and militia in the service of the United States, and to officers of foreign services as they do to the officers of the ship or command to which they belong.

Question. What is the regulation in regard to the use of the ship's gangway when coming on board?

Answer. The starboard gangway shall be used by all commissioned officers and their visitors; the port gangway shall be used by all other persons. If the construction of a ship or other circumstances make a change in this rule expedient, the change may be made at the discretion of the commanding officer.

Question. Is there any exception to this rule?

Answer. Yes; in heavy weather the lee gangway shall be used.

Question. What is meant by the "lee gangway"?

Answer. The lee side of a vessel is the side opposite to that against which the wind blows; the latter is called the weather side.

Question. What permission must you obtain before leaving the ship at any time?

Answer. Permission from the officer of the deck to leave the ship.

Question. In going on board ship, what report do you make to the officer of the deck?

Answer. After saluting the colors and then the officer of the deck, report, "I request your permission to come on board, sir."

Question. What report on leaving the ship?

Answer. "I request your permission to leave the ship, sir."

Question. Do you always salute the officer of the deck?

Answer. Yes; always salute when addressing, or being addressed by, the officer of the deck, or any other officer.

Question. When you receive an order from an officer, what is the proper reply to make?

Answer. The reply, "Aye, aye, sir."

Question. What is the meaning of "Aye, aye, sir"?

Answer. The order is understood and will be obeyed.

Question. What expressions should be avoided in replying to an order received from a senior?

Answer. The expressions "Very good, sir," or "Very well, sir." These expressions, although too often used by enlisted men in response to an order from an officer, do not convey the meaning given by the expression "Aye, aye, sir," which is the answer that a subordinate has always given in response to an order from a senior.

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