

therefrom, and be able to find the longitude by chronometer by the usual methods. He must know how to lay off the place of the ship on the chart, both by bearings of known objects and by latitude and longitude. He must be able to determine the error of a sextant and to adjust it; also to find the time of high water from the known time of the full and change.

*In Seamanship.*—In addition to what is required for a second mate, he must know how to moor and unmoor, and to keep a clear anchor; to carry out an anchor; to stow a hold; and to make the requisite entries in ship's log.

He will also be questioned as to his knowledge of the use and management of the mortar and rocket lines in case of the stranding of a vessel.

18. A first mate must be nineteen years of age and have served five years at sea, of which one year must have been as either second or only mate.

*In Navigation.*—In addition to the qualifications required for an only mate, he must be able to observe azimuths and compute the variation; to compare chronometers and keep their rates, and find the longitude by them from an observation of the sun to work the latitude by single altitude of the sun off the meridian; and be able to use and adjust the sextant by the sun.

*In Seamanship.*—In addition to the qualifications required for an only mate, a more extensive knowledge of seamanship will be required as to shifting large spars and sails, managing a ship in stormy weather, taking in and making sail, shifting yards and masts, and getting heavy weights, anchors, &c., in and out; casting a ship on a lee shore; securing the masts in the event of accident to the bowsprits.

19. A master (ordinary) must be twenty-one years of age, and have been six years at sea, of which at least one year must have been as first or only mate, and one year as second mate.

In addition to the qualification for a first mate, he must be able to find the latitude by a star, &c. He must also be able to answer to a certain number of the questions on compass deviation contained in circular 547, issued by the Board of Trade, 1871. He will be examined in so much of the laws of the tides as is necessary to enable him to shape a course and to compare his soundings with the depth of water marked on the chart. He will be examined as to his competency to construct jury rudders and rafts; and as to his resources for the preservation of the ship's crew in the event of wreck. He must be able to heave a ship down to get lowermasts in and out, and to perform such other operations of like nature as the examiner may consider necessary.

He must possess a sufficient knowledge of what he is required to do by law, as to entry and discharge, and the management of his crew, and as to penalties and entries to be made in the official log; and a knowledge of the measures for preventing and checking the outbreak of fever on board ship.

He will be questioned as to his knowledge of invoices, charter-party, Lloyd's agent, and as to the nature of bottomry; and he must be acquainted with the leading lights of the channel or coast he has been accustomed to navigate or which he is going to use.

From the 1st of August, 1881, candidates for second, only, first mates' and masters' certificates of competency will, in addition to the present requirements for these grades, be required to pass an examination in the subjects specified below.