

55. **Examination in Navigation.**—A candidate for a second mate's certificate will be required—

- (a.) To be able to read, to write a legible hand, and to spell correctly.
- (b.) To understand the first five rules of arithmetic, both simple and compound.
- (c.) To be able to take a bearing by compass, and be able to find the distance from a point or light by the methods shown in the "New Zealand Nautical Almanac" of 1918, on pages 173 to 176, or on pages 135 to 138 of Tables for Azimuth, Great-circle Sailing, &c., published by the Marine Department.
- (d.) He must show a competent knowledge of the International Code of Signals.

56. **Examination in Seamanship.**—He must understand and give satisfactory answers on the following subjects :—

- (a.) The standing and running rigging of steamships.
- (b.) Bending, unbending, setting, reefing, taking in, and furling sail.
- (c.) Management of ship's boats in heavy weather.
- (d.) Dunnaging and stowing cargo, &c.
- (e.) The rule of the road as regards both steamers and sailing-vessels, their regulation lights, and fog and sound signals.
- (f.) The signals of distress, and the signals to be made by ships wanting a pilot, and the liabilities and penalties incurred by the misuse of these signals.
- (g.) The marking and use of the lead and log lines.
- (h.) The use and management of the rocket apparatus in the event of a vessel being stranded, and a knowledge as to the ports in New Zealand where such rocket apparatus for saving life has been placed.
- (i.) The construction, use, and action of the sluices, and of the water-ballast tanks.
- (j.) Engine-room telegraph, &c.
- (k.) Any other questions appertaining to the duties of the second mate of a home-trade vessel which the Examiner may think necessary to ask.

*Mate, Home Trade.*

57. **Mate, Home Trade.**—A candidate must be not less than nineteen years of age, and have served four years at sea or in extended river limits.

58. **Examination in Navigation.**—In addition to the subjects of examination required to qualify for a second mate of a home-trade vessel, a mate will also be required—

- (a.) To be conversant with the use of a Mercator's chart, and be able to find on a chart or plan the course or courses to steer, and the distance or distances from one given position to another; to find the ship's position, together with the set and drift (if any), on a chart or plan from cross-bearings of two objects; to find the ship's position from two bearings of the same or different objects, the course and distance run between taking the bearings being given, making due allowance for a given tide or current; also the distance of the ship from the objects or any given position at the time of taking the second bearing; to find on a chart or plan the course to steer by compass in order to counteract the effect of a given tide or current, and to find the distance the ship will make good towards a given point in a certain time, and to work out practically the correction to apply to soundings taken at a given time and place to compare with the depth marked on the chart; also to fix the ship's position by horizontal sextant angles, using a station-pointer for plotting it on the chart or plan, &c., and give a method of finding approximately the time of high water at any given place without the aid of the Admiralty or other Tide Tables. He will also be required to explain orally the markings, signs, and abbreviations on Admiralty charts and plans, the use of the sextant, to be able to observe with it, to read *off* and *on* the arc, and to find the index error by the horizon. He will also be required to attain a minimum speed of eight words a minute in semaphore and five words a minute in Morse