

be able to state how these might have been prevented, and how remedied. Sometimes an engineer presents himself who has had no personal experience of any defects, and who can tell nothing about casualties to machinery which have occurred in the experience of others. Such candidates should be closely questioned as to their knowledge of boiler and engine construction, and the repairs of same.

The management of engines and boilers at sea, the duties of the engineer on watch, the work to be done to the engines, boilers, and auxiliary machinery in port, and the periodical examinations of the working-parts form part of the *viva voce* examination.

79. Reports of examinations on the form Exn. 15, together with the examination-papers and face sheets, should be forwarded to the Chief Examiner of Engineers immediately the examinations are completed.

RIVER ENGINEERS AND MARINE-ENGINE DRIVERS.

General.

80. Candidates for examination must make a proper application on form Exn. 3, which will be supplied on application at any Customhouse, Mercantile Marine Office, or office of an Inspector of Machinery. This application, accompanied by the necessary testimonials and fee, must be forwarded to the Chief Examiner of Engineers at the office of the Chief Inspector of Machinery, Wellington, with an intimation of the place at which the candidate wishes to be examined.

Certificates of competency will be granted to those persons who pass the requisite examinations, and otherwise comply with the requisite conditions. For this purpose Examiners have been appointed, and arrangements have been made for holding the examinations at the places and times specified in paragraph 4 of these Regulations:

Provided that in case of emergency the Examiners may examine candidates at other than the prescribed periods.

Certificates procured on false information will be cancelled.

81. *River Engineer.*—An engineer of a steamer plying within restricted limits must be twenty-one years of age, and must have been employed about the machinery or boilers of a steamer, or in driving machinery and having charge of the boiler of a land-engine, for at least one year, or produce satisfactory proof of having served five years at the making and repairing of engines, and having been employed about the machinery or boilers of a steamer, or in driving machinery and having charge of the boiler of a land-engine, for at least six months. He must produce satisfactory testimonials of good conduct and sobriety for at least one year immediately prior to date of application.

- (a.) He must be able to read and write, must understand the first five rules of arithmetic, and questions relating to the consumption of coal and stores, the capacity of bunkers, and must be able to calculate the pressure on the safety-valve.
- (b.) He must understand the use of the salinometer and vacuum and steam gauges.
- (c.) He must understand how to keep the boiler free from incrustation, and the method of regulating the density of the water in the boiler.
- (d.) He must be able to state how a temporary repair could be effected in case of derangement of machinery or boiler.

(e.) He must pass a creditable examination as to the construction and details of the different parts of any engine used in steamers plying within restricted limits, and give an explanation of the use of each part.

(f.) He must be able to give a satisfactory description of the construction of the different kinds of boilers in general use in steamers plying within restricted limits, and must explain the use and management of the feed and safety valves, brine-cocks, and all connections.

82. *Marine-engine Driver.*—A marine-engine driver can act as an engineer of a steamship plying only within harbours, rivers, and lakes, or other inland navigable waters, and which is fitted with non-condensing machinery, the area of cylinder or combined area of cylinders of propelling machinery of which does not exceed 200 circular inches.

- (a.) He must be twenty-one years of age, and must have been employed about the machinery and boilers of a steamer, or in driving machinery and having charge of the boiler of a land-engine, for at least six months, or produce satisfactory proof of having served five years at the making and repairing of engines.
- (b.) He must produce satisfactory testimonials of good conduct and sobriety for at least one year immediately prior to date of application. He must be able to read, write, and understand the first five rules of arithmetic.
- (c.) He must understand the use of the salinometer and steam-gauge.
- (d.) He must understand how to keep the boiler free from incrustation, and the method of regulating the density of the water in the boiler.
- (e.) He must be able to state how a temporary repair could be effected in case of derangement of machinery or boiler.
- (f.) He must pass a creditable examination as to the construction and details of a non-condensing engine, and give an explanation of the use of each part.
- (g.) He must be able to give a satisfactory description of the construction of the different kinds of boilers used in steamers plying only within harbours, rivers, and lakes, or other inland navigable waters, and which are fitted with non-condensing machinery, the area of cylinder or combined area of cylinders of propelling machinery of which does not exceed 200 circular inches, and must explain the use and management of the feed and safety valves, brine-cock, and all connections.

Failures.

83. If the applicant fails in practical knowledge, he may not present himself for examination for three months from date of failure. If he fails in arithmetic, he may come up again for examination at any time.

Fees.

84. The fee to be paid by the applicants for examination is £1. This fee must be paid before any step is taken whether by inquiring into service or testing