

The regulations respecting examinations of masters and engineers under the New Zealand Act, would of course apply exclusively to masters and engineers who do not possess certificates granted under the Imperial Act in the United Kingdom, and to masters and engineers of New Zealand ships employed in trading elsewhere than to the United Kingdom, as has been pointed out above in speaking of the application of the Act under sections 12 and 45.

Certificates granted to masters and engineers in the United Kingdom under the Imperial Act, are sufficient to enable the holders to take charge of a ship, or the machinery of any British ship, wherever she may be plying.

The Regulations respecting the examinations and certificates of masters, mates and engineers in the United Kingdom are enclosed.

As regards clause 23, the Board of Trade wish to point out that it effects the application to New Zealand ships of a clause similar to a certain extent to one once applicable to British ships under the Imperial Statute; but which has been removed from the Imperial Statute in consequence of its utter uselessness, and of its mischievous character.

The clause referred to is clause 300 of the Merchant Shipping Act of 1854, enclosed, and is repealed by the Merchant Shipping Amendment Act, 1862, enclosed.

It has been found in practice that two bulkheads alone are not sufficient to save a ship. It was also found whilst the bulkhead clauses were in operation that where ships have been saved by their bulkheads, those bulkheads were as a rule placed in such a position as not to comply with the Act, or were supplied and fitted in addition to the two bulkheads required by the Act.

It has been found better to leave it to the judgment of owners and builders to put in as many bulkheads and in such a position, as the safety and service of the ship require.

The Board of Trade think that a proper number and disposition of bulkheads are essentially necessary, and they have found that since the repeal of the bulkhead clause, the number of bulkheads put into a steamship is generally sufficient, and that the safety of the ship is increased.

Clause 24 provides that there shall be a safety valve on each boiler out of the control of the engineer.

It does not provide that that safety valve is to be in addition to the ordinary safety valve. It may therefore happen in practice that the only valve on the boiler will be locked up and may set fast, and (as there is reason to believe from experience in this country) explosions will actually be caused by the means intended to prevent them.

The Board of Trade would suggest as regards the safety valve clause, and in order to carry the intention of the New Zealand Legislature into effect, that it should be worded so as to admit of a valve being constructed on each boiler in such a manner that the pressure cannot be increased when the steam is up, and in addition to the ordinary or working valve. Whilst it is necessary that the valve should be constructed so that the pressure in the boiler cannot be increased, it is essential that it should be provided with lifting gear so that the engineer who works the boilers may see that it does not set fast and may be able to lift it when necessary.

In framing the clause it would be well to see especially that it does not prevent the application of lifting gear.

As regards the safety valve clause, the Board of Trade think that it may not be amiss to point out that the limit of weight to be placed on the safety valve in a British steamship is not determined by the surveyors of this Board by the hydraulic test, but by calculation of the strength of the boiler and its stay power, and in flat surfaces the pressure allowed by the surveyor on the sectional area of the stays is usually limited by him to 5000 lbs. to the square inch. This has been found in practice to be safer than relying solely on the hydraulic test, but after the working load to be put on the safety valve has been arrived at by calculation, the boiler is sometimes pressed to double this load by the hydraulic pump, if the surveyor thinks it desirable to do so. The Board of Trade call especial attention to the method by which their surveyors arrive at the limits of the weight to be carried on the safety valve of a passenger steamship, *i.e.* by calculation: as it has been proved in practice that if test strains alone are relied on, the margin of safety is greatly reduced, and the construction tested may suffer injury.

As regards clause 26 the Board of Trade desire me to say that a boat scale which requires ships to carry boats according to tonnage and not according to the number of passengers and the length and nature of the voyage, has been proved under the Imperial Act to be bad and inequitable, generally difficult to carry into effect, and, in many cases inapplicable, and a dead letter.

The Board of Trade would recommend that the number of boats, life-boats, buoys, cork jackets, and other appliances usually carried for saving life, should be determined by the nature and length of the voyage and the number of persons carried rather than by the register tonnage of the ship alone.

It is obviously unnecessary to require two steamships to carry boats, &c., of a similar number, size, and description, when one steamer may be employed in carrying several hundred passengers and the other may carry only a score of men composing the crew.

A copy of the instructions to surveyors appointed under "The Merchant Shipping Act, 1854," of "The Anchors and Cables Act, 1864," and of a paper written by Mr. Galloway, the Inspector appointed under that Act, are enclosed, as they may, with the above remarks, be of use to the Colonial Legislature in amending the Act herein returned.

I am to add that the subject of further amending the fourth part of the Act of 1854, and of amending the Act of 1862, is under the very serious consideration of this Board, and that the amendments intended to be proposed will tend to remove from the statute book some of the existing minute enactments respecting the construction and equipment of steam ships.

I have, &c.,

THOMAS GRAY.

The Under Secretary of State, Colonial Office.