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# Lloyd's Register of Shipping,

71, Fenchurch Street, E.C. 3.

9th November, 1923.

Dear Sirs,

E. With reference to Mr. Watt's letters of the 2nd ultimo regarding the fitting of tail shaft liners and of the 6th ultimo regarding the jointing of the tail shaft for Messrs. Mitsu Bishi Kobe Works' Vessel No. 129, I am directed to inform you that the most efficient continuous liner for a propeller shaft is undoubtedly one that is made in one piece. In this country, even with long liners, it is almost the universal custom to make the liners in one piece.

During the war it was found in America that apparently sufficient experience had not been gained to enable long liners to be made satisfactorily in one piece, and it was the custom in that country to make these liners in two pieces, generally with a lapped joint as shown in Mr. Watt's letter of the 2nd ultimo, the joint being in some cases made tight by solder, or other means, or by having a dovetailed groove turned at the joint and a copper strip caulked into the same.

(Subsequently some of the leading Engineering Firms in America were able to supply and fit propeller shafts with long and continuous liners in one piece).

Experience showed that with none of these methods could

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continuous tightness of the joint be ensured. They were, however, accepted by the Committee, subject to these joints being examined at intervals of not less than two years, and if at these examinations it was found that the joints of the liners were not tight, it was required that the liners should be cut away at the joint for the examination of the shaft.

It was not required that these shafts should be increased in diameter beyond that required for a shaft with a continuous liner in one length, but this might be desirable if on account of the joint of the liner being found slack it was necessary to cut it away and thus render it a two liner shaft.

I have, however, to point out that even if the diameter of the shaft was increased 5% as required for a two liner shaft, if there was a leakage at the joint of the liner there would probably be such acute nicking of the shaft at this point, through galvanic action, that the shaft would require to be condemned, even if it was increased 5% above that required for a continuous liner shaft.

In the case of continuous liners which are made in two or more lengths it is considered that the most efficient method is to fuse the joints together the full depth of the liner.

This has to be most carefully carried out and is not even then always successful.

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In the proposed New Rules for shafting which have been approved by the Board of Trade, the British Corporation and the Bureau Veritas and Lloyds submitted to the Technical Committee of this Society on the 29th instant, one of the requirements for continuous liners is as follows:-

"Continuous liners should be cast in one piece or, if made in two or more lengths, the junctions of the separate pieces are to be made by fusion through the whole thickness of the liners."

It is thought that if sufficient care is given to the casting and shrinking on of continuous liners in Japan, as has been given in this country, there should be no difficulty in fitting all propeller shafts with continuous liners in one piece, in which case the vexed question of the joints of liners would be overcome.

I am, Dear Sirs,

Yours faithfully,

Secretary.

The Surveyors,

Kobe.



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