

COPY.

11th March 1911.

Dear Mr. Mathieson,

S.S. "CACIQUE".

Very many thanks for your letter of the 24th ultimo, which I have read with great interest.

With regard to the probable cause of the main deck in way of the No. 3 hatch aft of the engine space having deflected, from the figures given as to the amount of nitrate carried in the tween decks on that occasion, viz:- 586 tons, stowed in bags at about 30 cubic feet per ton, you will see that had this been stowed uniformly throughout the particular compartment in question the actual weight per unit area of deck including the hatch is practically equal to the weight that would come upon the beams if 8 ft. of coal been uniformly stowed in that compartment; 8 ft. of coal, stowed at 50 cubic feet per ton, being as I told you in my letter of the 17th October last the standard we ask for the strength of the tween deck beams.

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As the girder was undoubtedly strong enough to take this load, the only conclusion I can arrive at is that the cargo was not uniformly stowed, or in other words was concentrated over the hatch.

With regard to your calculation as to the strength of the girder you are right in assuming that a large part of the web of the girder being cut away does not contribute to the strength of the same, but at the same time I might point out that this portion of the girder would not be included in the calculations and in any case being so near the neutral axis would not contribute to any great extent to the strength of the girder in resisting normal stresses.

The attachment which you sketch is not intended to obtain a continuity of material in way of these slots, but to act as an attachment of the girder to the beam and as a stiffener to the girder.

I may mention that this a very common type of girder, and is the type fitted in nearly all cases with which we have to deal.

Your calculation giving the total modulus of resistance of 61.54 appears to have been obtained by

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an addition of the individual moduli of these component parts. The actual modulus of the section taken as a whole viz:- parts of the deck plating, the flanged coaming, the bulb angle, and the continuous part of the girder is considerably more than the figure given by you as a minimum to give a fair margin of strength, viz:- 100.

I think if you will look into this again you will be able to verify these figures.

It has been a very interesting case, and such cases are well worth investigating. We find that nearly all cases of a girder-failure have been undoubtedly due to an excess of loading which of course it would be not economical for us to provide against.

Again thanking you, and with kindest regards,

Yours very truly,

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