

SUMMARY.

It will be observed that the six vessels which were damaged were of five different types; also that they are of various dimensions and that all are of extreme proportions. Four of them had deep water ballast tanks, but two had none. The Steamers No. 1, No. 4, and No. 6 are known to have been loaded with heavy concentrated weights amidships, and the nature of the damage to all six vessels shows without doubt that the straining was in each instance caused by sagging such as would be experienced in the trough of a sea. This tendency to sag is much accentuated when a vessel is ballasted with heavy weights concentrated amidships through filling deep midship tanks with water and carrying large quantities of bunker coal in the vicinity of the same, while the forward and after holds are empty.

The scantlings provided for in the Society's Rules are adapted for vessels properly loaded or ballasted. With such a distribution of weights no buckling of deck plating has been experienced; but owing to changes in trade exigencies a practice has arisen of late of sending vessels across the Atlantic ballasted with their principal weights concentrated at amidships. It has been under these conditions that cases of buckling have been experienced. It would therefore appear to be desirable to modify the requirements of the Rules with regard to the upper structures of vessels so as to better resist the tendency to buckling of the deck plating under these more severe methods of loading or ballasting.

For this purpose it is proposed :—

Firstly :—To require the beams of upper and spar, steel or iron decks to be fitted at every frame as was recently required at all steel bridge, shelter, and awning decks.

Secondly :—As the buckling of the deck plating in most of the reported cases took place between points of great local stiffness, such as engine and boiler room casings, coamings of hatchways, deck houses, &c., where the tendency to strain in this way would be greatly accentuated, it is further proposed in such instances to provide for intermediate intercostal girders as a support to the deck plating and as a means of distributing the local stiffness somewhat over the remainder of the structure. In all the cases reported the straining of the decks occurred within a very short distance of amidships. It would therefore only be necessary to provide for this local strengthening between hatchways or deck houses at the midship portion of the vessel.

Thirdly :—It would appear desirable to provide for a steel deck with beams at every frame to be fitted in large vessels to all bridges.



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