

The report of Mr.Craig refers to another report by Mr.Cousins, which however, is not forwarded.

With regard to the statements in his report and covering letter, the following remarks are submitted.

Mr.Craig states that he was more than surprised to see a vessel fitted as she was being able to pass a classification survey and that there was really no spare gear on board the vessel at all. This statement as regards spare gear is not correct.

A considerable quantity was on board, including everything usual in a steam vessel, and also 4 fuel valves and 4 pulverisers referred to by Mr.Craig. Regarding the main compressor, which Mr.Craig refers to as being very badly designed, it may be mentioned that it and also the auxiliary compressor are of the Reavell Type. This type is very largely used for land Diesel Engines both in this country and on the Continent and has been used in the vessels "NAVESTONE" and "ROLANDSECK" which are fitted with Diesel Engines. It is so arranged that all the main working parts can very easily be got at and attended to by an engineer understanding its construction. Its accessibility is one of the special features claimed for it.

Regarding the suggestion that spare connecting rods should have been supplied to the main compressor it should be remembered that there is an auxiliary compressor on board capable of supplying the full quantity of air required by the main engine and this is virtually a spare compressor. After the return of the vessel in order to make assurance doubly sure it was recommended by our Surveyor that spare connecting rods and pistons should be supplied for both compressors.

Next as to the alleged causes of damage.

1. It is usual in all steam engines that the cooling water used upon guides, thrust and all bearings should run into the bilge to be pumped out by the bilge pumps. In this case a



similar course was adopted and in addition the water used for cooling the pistons was similarly led to the bilges. This plan was deliberately adopted, the delivery of the water from each piston being in a position in which the Engineer could see that the necessary circulation was taking place, which could not be done if the water were discharged directly overboard. This same practice is adopted in other Diesel Engined vessels. There is no corresponding water in a steam engine, but in a steam vessel there is the ash cooling water led to the bilges which there is not in this case.

Two bilge pumps were fitted of the size which would be fitted in a steam vessel. One only of these pumps would in ordinary course be quite sufficient to deal with all the bilge water ordinarily flowing into the vessel.

2. This statement is not understood, but the implication contained in it is unwarranted.

In the "FERDONIAN" there was a more than usually capacious well right aft in the engine room, extending for seven frame spaces. In this well there were fitted the following suction, each  $3\frac{1}{2}$  inches diameter, one connected to both the main engine bilge pumps and to the donkey and one separate suction leading direct to the general service donkey. These are what would be required by the Rules for steam vessels.

3. Regarding the proximity of the main compressor and scavenge pump suction to the tank top. The compressor is of the Reavell Type and is necessarily at the same level as the crank shaft. Its air inlets are at about its centre. These compressors have given no trouble in other vessels. It is by no means certain that the breakdown of compressor was due to water. It was more probably due to inattention to lubrication.

The inlets to the scavenge pump were too low and have been altered. They, however, were precisely the same as have given no trouble in two other vessels, viz:- the "EAVESTONE" and the "ROLANDSECK".

4. The boiler is a donkey boiler. It was provided with three

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means of feed, viz:- a special donkey pump drawing from the sea, and ballast tank, an injector drawing from the sea and the general service donkey also drawing from the sea.

For the service for which the vessel was intended, viz:- on the Fresh Water Lakes the suction from the sea only were required. That to the ballast tank was made as an addition for the voyage out and this with the two additional suction from the sea was more than is usually supplied for a donkey boiler. The cause of the donkey boiler pump being unable to feed the boiler was after the return of the vessel found to be a stoppage of the suction pipe in the ballast tank by a piece of waste.

5. No deficiency as regards escape valves in the cylinders has been reported, and the escape valves had nothing to do with the return of the vessel.

6. The water tank next the oil tank was a ballast tank and was not intended for carrying drinking water, although it was appropriated for this purpose during the voyage out. A very small leakage of oil into the water tank spoiled the water for drinking purposes.

7. This is <sup>a</sup> misconception. The separate donkey suction required by the Rules was fitted from the general service donkey into the engine room well. The ballast donkey was fitted with a special suction of large size which was led to a convenient position on the tank top as an emergency suction in lieu of the bilge suction which is usually fitted as an emergency suction in steam vessels.

8. We have no knowledge of this.

It is stated that "the main bilge pumps were unable to pump the water out of the engine room as quickly as it ran in from the guides, pistons, piston rods, etc., " (The inclusion of piston rods is evidently a mistake). The cause of the bilge pumps not clearing the engine room well of water was not because they were not large enough, or were not properly constructed, but because one of the valves was choked with a piece of waste. This was found to be the case after the vessel's return to the Clyde.



The remarks as to water in the cylinder are purely imaginary. The compression of the air in the cylinders raises the temperature of the air in them to over 1000° F every revolution, and at this temperature it is inconceivable that water could exist as such in the cylinder, and certainly it could not accumulate. The temperature mentioned is that due to the compression irrespectively of any combustion of oil which takes place.

Referring to the last paragraph the donkey boiler was largely fed with sea water owing to the failure of the donkey boiler feed pump which alone was fitted to draw fresh water from the ballast tank and it was from the sea water supplied to the boiler that the scale was derived. Oil in a boiler does not form a scale.

The water, other than sea water, with which the boiler was supplied was taken from No. 2 ballast tank which was filled with fresh water for the purpose and this tank has no connection whatever with or proximity to any of the oil tanks. Moreover, the Surveyors reports made after the return of the vessel contain no suggestions that oil had found its way into the boiler. The inference that the oil tanks were not properly constructed is therefore baseless.

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