

OFFICIAL COPY.

(No. 19.)

"BESTS" (S.S.)

The Merchant Shipping Acts, 1854 to 1876.

In the matter of an Investigation held at North Shields on the 12th day of September 1888, before LEIGHTON MILLS, Esquire, Inspector appointed by the Board of Trade to inquire into and report upon the circumstances attending the loss of the British steam tug "BESTS," of Shields.

Report.

Board of Trade Office,
North Shields,
October 2nd, 1888.

SIR, In pursuance of the instructions conveyed to me in your "Appointment as Inspector," I have inquired into the circumstances attending the loss of the "BESTS," of Shields, and beg to report as follows:—

The "BESTS" was a British steamship, built of wood in the year 1857. Her length was 77 feet, her breadth 16 feet, and her depth 8.95 feet.

She was rigged as a sloop, and was fitted with one engine of 28 nominal horse-power.

She was registered at the port of Shields, her official number being 15,992, and her tonnage, after deducting 52.75 tons for propelling power, was 9.06 tons registered.

She was owned by Mr. John Clark Minto, waterman, of North Shields, who had mortgaged her to Mr. Samuel Ellis for the sum of 200*l.* The mortgagee stated that his mortgage was not separately insured, and that the vessel was insured for 250*l.* up to September 1887, when the club reduced the insurance to 150*l.*

Mr. Minto purchased the vessel in the year 1878 and paid 200*l.* for her. In 1882 she was fitted with a new after paddle beam, new gangways, the keelson bolts and bed plate bolts were renewed, and a new keelson was bolted on to the old one to strengthen it. About twenty timbers were renewed in each side, and the planking on one side was doubled. A pair of second-hand boilers was purchased and supplied to the vessel. The engines were overhauled, and sundry other repairs were effected. The cost of the repairs was as follows:—

	£
Repairs to vessel - - - - -	163
Cost of boilers - - - - -	40
Repairs to and putting in boilers - - -	73
Overhaul of engines - - - - -	35

	£311

Since this time several small repairs have been effected to the boilers, and in April last some plates were put on the bottom of the tubes in the fire-box, and several rivets were put in the furnaces, these repairs costing about 27*l.*

The boilers have never been tested since they were supplied to the vessel in 1882.

It appears that the boilers were made for the "Iona," which vessel was built in 1886, and Mr. Hepple stated that he took them out of her in 1881, when she was fitted with new boilers, and was of opinion that the boilers

were originally made by Mr. Ettringham, of South Shields; but when the "Iona" was built his books merely gave the consecutive numbers of the boilers and not the names of the vessels for which they were supplied, consequently Mr. Ettringham was unable to identify them, but there is little doubt that the boilers were built about that time.

Mr. R. J. Marshall, engineer and boiler maker of South Shields, by whom the boilers were fitted into the "BESTS" in 1882, stated he examined them inside and out and tested them by cold water pressure to forty pounds per square inch, and that they were then in good working order.

Mr. Marshall effected minor repairs from time to time as decided by the owner; and in April last he took off several patches that were bolted in the furnaces and put on new patches in their place, which he rivetted, so making a better job. He also renewed a bolted patch on the bottom of each boiler. Mr. Marshall merely did odd jobs pointed out to him; and he did not thoroughly examine the boilers at any time since 1882, and could not give any information as to the thickness of the plates, or their condition; though he gave it as his opinion that the boilers when last repaired were not good, but they were not in a dangerous state, and that a pair of new boilers of this description would cost 250*l.*

William Minto, master of the vessel, stated that the boilers were common flue boilers, with a connecting steam-pipe between them, but no steam stop-valves. There were two feed pipes, one for the bottom of each boiler, and fastened to it by a flange and bolts. These pipes were of copper, and they reached from the bottom of each boiler to a cross pipe, also of copper, to which they were fixed by flanges and bolts. The cross pipe was about 3 feet in length, and there were two valves in it. This cross pipe was connected to a blow-off pipe, also of copper, about 6 feet in length, with a brass cock about 1 foot from the valves, and it was secured to the port side of the vessel by a large flange inside and a flange outside. There were no feed check-valves on the boiler.

George Hardy, the engineman, stated that the safety valve box was on the top of the front centre of the two boilers. The safety valve lever was on the top of the valve box, and had a ball loading it to 16 lbs. per square inch, and that it was never otherwise loaded.

The last repairs to the boilers were effected in April last, and water was then run in to see that the boiler was tight, but it was not otherwise tested. The boilers rested on thwart ship bearers, placed on fore and aft bearers, and were secured by wooden chocks.

The vessel had one hand pump, a main engine bilge pump, and a manual donkey pump, all of which the master stated were in good condition, and she carried one boat.

The vessel left the Tyne on the 25th August last with a crew of 4 hands, looking out for ships to be towed. The usual working pressure of the boilers was twelve or thirteen pounds, and they blew off at sixteen pounds. About 3 a.m. on the last mentioned date the vessel was off Souter Point. The engines were stopped, the pressure on the boilers being about 10 lbs. All hands were on deck, when a report was heard in the engine-room, and upon the engineman going down to see what was the matter, he found the engine-room full of steam and the water three or four inches above the level of the bottom of the boiler. He called to those on deck to start the engines. He found the suction, and turned the injection cock on to the bilges, both pumps being then at work, and the crew shipped the hand pump.

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1888.

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When the steam cleared away, the engineman came to the conclusion that the port boiler had given way, and the vessel had sprung a leak owing to the explosion.

The engineman though, up to his knees in water, kept firing the starboard boiler, and the engines were put full speed ahead with a view to reach Sunderland, but by 3.30 a.m. he found the starboard boiler would not keep steam, as it passed to the port boiler and escaped through the leak in the shell.

The water however gained and put the fires out, but the crew worked the hand pump until 4.50 a.m., when the vessel was found to be settling down, and they took to their boat and went on board a fishing boat in the vicinity. The vessel foundered about 5.5 a.m. off Whitburn, Souther Point, bearing N.W. by W., distant $3\frac{1}{2}$ miles.

The foregoing being the substance of the evidence in this case, I have to remark, first, with regard to the boilers that they were at best but old ones, and had been rejected as past further use when they were bought by Mr. Minto, and although Mr. Marshall describes them at that time as being, after his repairs, in good condition, yet they do not appear to have had much done to them since then, and the evidence shows conclusively that there were two large bolted patches on the bottoms at front, in all cases a very doubtful method of repair. These same patches were rebolted on in April this year, showing that they were liable to give trouble. The boilers should at the time they were last repaired have been tested by cold water pressure to a reasonable amount above the working pressure. It is quite possible that these patches were the cause of the boiler shell giving way at that part, as the evidence shows that the failure occurred at the bottom, and if

the water test had been applied, it would have had the effect of betraying any weakness that might exist, as much of the boiler was not accessible for examination. Secondly, as regards the seaworthiness of this vessel when she left on the 25th August, the evidence of the condition of her hull does not warrant me saying that it was not in a seaworthy condition, but the fact of the vessel making water so rapidly as described after taking a list, suggests that her topsides were leaky, unless indeed the planking of the bottom was broken by the force of the explosion. This was the opinion of the engineman, and if so it would account for a large amount of leakage.

But the boilers were the principal weakness, and were certainly not in good working order, and were not sufficient for the pressure at which they were worked.

There is nothing to show that the pumps and equipments were not sufficient for the vessel under all ordinary circumstances.

In conclusion I find the loss of the vessel was due to the defective condition of her boilers, which exploded at the ordinary working pressure, and so soon emptied itself of water that it immediately threw the vessel on her beam ends, and she filled in consequence and sunk.

I find that the master, engineman, and crew did all in their power after the casualty to save the vessel.

I am, Sir,

Your most obedient servant,

L. MILLS, Inspector.

The Assistant Secretary,
Marine Department,
Board of Trade.

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