

(No. 516.)

“EMBLEHOPE,” (S.S.)

The Merchant Shipping Acts, 1854 to 1876.

In the matter of the formal investigation held at the Assize Court, Moot Hall, Newcastle-upon-Tyne, on the 12th and 14th of February 1880, before H. C. ROTHERY, Esquire, Wreck Commissioner, assisted by Captain FORSTER and Captain CASTLE, as Assessors, into the circumstances attending the abandonment of the steamship “EMBLEHOPE,” of Newcastle, in the Bay of Biscay, on the 29th of November 1879.

Report of Court.

The Court, having carefully inquired into the circumstances of the above-mentioned shipping casualty, finds, for the reasons annexed,—

1. That the abandonment of the said steamship was rendered necessary by the fact that she was on her beam ends, her fires out, and that there was no hope of saving her.

2. That the shifting of the cargo was due to the vessel having been thrown on her beam ends.

3. That, having regard to the construction of the said steamship, she had not sufficient stability for the carriage of a full cargo of grain.

4. That the engine-room skylight was not properly constructed or sufficiently stayed, having regard to the fact that there were no bulwarks to protect it from heavy beam seas.

5. That the loss of the said steamship was not due to the wrongful acts and defaults of Charles Ellis, the master,—

(1.) In neglecting to secure the cargo from shifting, as required by section 22 of the Merchant Shipping Act, 1876.

(2.) In taking the vessel to sea too deeply laden, especially having regard to the construction of the said steamship, her high centre of gravity, and consequent lack of stability, and the season of the year, and the nature of her intended voyage.

But that the said loss was due mainly, if not entirely, to her defective construction, and to her great depth in proportion to beam, a defect for which the master could not be held responsible.

Dated the 14th day of February 1880.

(Signed) H. C. ROTHERY,
Wreck Commissioner.

We concur in the above report.

(Signed) GEORGE H. FORSTER, } Assessors.
 JOHN S. CASTLE, }

Annex to the Report.

This case was heard at Newcastle-upon-Tyne on the 12th and 14th of February instant, when Mr. De Hamel appeared for the Board of Trade and Mr. Adamson for the owners and master of the “Emblehope.” Nine witnesses having been produced by the Board of Trade and examined, Mr. De Hamel stated that the Board of Trade desired the opinion of the Court upon the following questions:—

“1. What was the cause of the abandonment of the steamship ‘Emblehope,’ in the Bay of Biscay, on Saturday the 29th of November 1879?”

“2. What was the cause of the shifting of the cargo?”

“3. Whether, having regard to the construction of the said steamship, she had sufficient stability for the safe carriage of grain cargoes?”

“4. Whether the engine-room skylight was properly constructed and sufficiently stayed, having special regard to the fact that there were no bulwarks to protect it from heavy beam seas?”

“5. Whether the loss of the said steamship was caused by the wrongful acts and defaults of Charles Ellis, the master,—

“(1.) In neglecting to secure the cargo from shifting as required by section 22 of the Merchant Shipping Act, 1876? and

“(2.) In taking the vessel to sea too deeply laden, especially having regard to the construction of the said steamship, her high centre of gravity, and consequent lack of stability, and the season of the year, and the nature of her intended voyage?”

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Mr. De Hamel also stated that “in the opinion of the Board of Trade the certificate of the said Charles Ellis should be dealt with.”

Mr. Adamson having addressed the Court on behalf of his parties, and Mr. De Hamel having been heard in reply, the Court proceeded to give judgment on the questions on which its opinion had been asked. The circumstances of the case are as follow:—

The “Emblehope” was an iron screw steamship, belonging to the Port of Newcastle, of 1,944 tons gross and 1,255 tons net register, and was fitted with engines of 177 horse-power combined. She was built at Pallion, Sunderland, in the year 1870, and at the time of her loss was the property of Messrs. Henderson and Woods, of Newcastle-on-Tyne. We are told that Mr. Oswald, the builder, having failed, had gone to Southampton, and that in the course of removal the original plans of the vessel had been lost; the master, however, has furnished us with a rough sketch of the vessel, from which and from the evidence her description would seem to have been as follows:—

She is described in the certificate of registry as being a spar-decked ship, having two decks laid, and beams for a third, or, as we should say, orlop beams below. The upper deck was of wood, the main deck of iron. She had her engines amidships, forward of which were two holds, which were called by the witnesses Nos. 1 and 2; and abaft the engines was No. 3 hold. In the ’tween decks the space between the crew space and the forward engine-room bulkhead was also divided into two holds, the fore part of hold No. 1 being parted off by a wooden bulkhead for a rope locker. The after part also of the after ’tween decks for about 18 feet was parted off by a bulkhead, and was used as a room for stores.

According to the copy register the total length of the vessel was 302.3 feet, her main breadth to outside of plank was 34.2 feet, her depth in hold from tonnage deck to ceiling at midships 18.8 feet, and from upper deck to ceiling at midships 25.8 feet. The gross tonnage, as I have stated, was 1,944 tons, of which about 1,330 was below the tonnage deck and 614 above it. She had two water ballast tanks, one forward of the engine-room, the other abaft it; but no one was able to give us any information as to either their lengths or their capacities. On the upper deck was a raised fore-castle forward, and over the fore part of the engine-room was the bridge, abaft which was the engine-room skylight, about 15 to 18 feet long and about 4 to 5 feet broad, and rising some 3 or 4 feet above the deck.

Having discharged a cargo of coals at Odessa she proceeded to Sulina, and there took in a cargo of grain consisting of 12,670 quarters, partly barley and partly rye, but in what portions we are not told. Previously, however, to taking in her cargo she was fitted with shifting boards from the upper deck to the bottom of the ship, exactly as the “Tiara” is described to have been. The whole of the grain was in bulk, the rye, which is within 2½ per cent. the weight of wheat, being put in the lower holds in the centre of the ship, whilst the barley, which is 17½ per cent. lighter than wheat, was put forward and aft and in the ’tween decks. When the loading was complete the vessel was quite full, except the small store-room, 18 feet long in the fore part of No. 1 ’tween decks, on the floor of which there was about a foot or 18 inches of barley, with spare hatches, sails, and ropes above it.

Having completed her cargo, and taken in 120 to 130 tons of bunker coal, she sailed from Sulina on the 11th November bound to Antwerp, having a crew of 28 hands all told, and drawing 20 feet 6 inches forward and 21 feet 6 inches aft, and having, we are told, a freeboard of 7 feet 3. She arrived at Malta on the 17th, and there the captain opened the hatches, and finding that there had been a slight settlement of the cargo in the hatchways, he filled them up with about 25 or 26 bags of barley, and having taken in about 264 tons of coal left again on the following day. At about 6 a.m. of the 26th they were abreast of Cape Finisterre, at which time all her sails were in, and the vessel was going at half speed, the wind blowing a fresh breeze from the N.E. They continued at half speed until about noon of the 27th, when the wind and sea having increased very considerably the engines were put down to dead slow. At this time the wind had got round to E.S.E., and the vessel was heading about east or E. by N. During the afternoon of the 27th the wind increased with terrific squalls and a heavy cross sea, and the vessel got a slight list to port. At 9 p.m. a very heavy sea broke on board, stove in the deck-houses, galley, and engine-room skylight, the iron coamings on the port side being forced in about

2 feet at the top and about 8 inches below, and letting tons of water down into the engine-room. Steps were at once taken to endeavour to stop up the hole, but the men were swept away from it, the sea making a complete breach over her, and the second mate and two of the men, who were employed on the work, were seriously injured. All their efforts, however, to stop the hole proved unavailing, the water continuing to pour down into the engine-room faster than it could be pumped out. At length the water rose so high as to put out the port fires, by which time the vessel was upon her beam ends; and during the night the rails and stanchions on the port side, there being no bulwarks, were carried away; but they were not able to see whether any damage had been done to the deck, the port side being under water. At daylight the captain sent the mate down the fore hatch to see in what state the cargo was; and on going down he found that he could creep along the starboard wing, the cargo having shifted from the side to the shifting boards in the centre of the vessel. Having got to the bulkhead in the fore part of No. 1 hold he cut a hole with a hatchet into the rope locker, and the crew having got into it from a hatchway forward they by the captain's orders began to shift the barley from the rope locker to fill up the empty space on the starboard side of No. 1 hold. This they continued to work at all day, but without producing any effect. In the meantime the water continued to rise in the engine-room, and the fires having been put out the vessel fell off into the trough of the sea. They then began to bale her and continued at it through the night. In the morning a ship called the "Selina" hove in sight, and as there was then no chance of saving her, the fires being all out and the vessel on her beam ends, the crew of the "Emblehope" were taken on board the "Selina," and were by her landed at Bristol.

These then being the facts of the case, the Board of Trade have asked our opinion on a number of points, and the first is, "What was the cause of the abandonment of the steamship 'Emblehope,' in the Bay of Biscay, on Saturday the 29th November 1879?" The cause of the abandonment of the "Emblehope" is not far to seek. The vessel being on her beam ends, the fires out, and there being no chance whatever of preventing her from sinking, it became necessary to abandon her; and we cannot think that the master and crew were in any respect to blame for having so done.

The next question is, "What was the cause of the shifting of the cargo?" That the cargo shifted there can be no doubt; that is to say the cargo, which was on the starboard side, shifted over to the centre, or as far as the shifting boards would allow it to do; and no doubt also that on the port side shifted over to the port wing; but the shifting was not such as we are accustomed to see in many of these cases, where the cargo shifts from the starboard side right over to the port side; it could not do so in the present case, owing to the shifting boards having been carried from the top to the bottom of the ship. So far as we are able to judge, the shifting of the cargo was, as in the case of the "Tiara," due not to any imperfection in her shifting boards, but to the listing over of the vessel arising from a cause which we are about to state. It was not the shifting of the cargo which caused the vessel to fall over on her beam ends, but the falling over of the vessel which caused the cargo to shift.

The third question on which our opinion is asked is, "Whether, having regard to the construction of the said steamship, she had sufficient stability for the safe carriage of grain cargoes?" Here then arises again the same question, which was so fully discussed in the case of the "Tiara." In a work of considerable authority "Stevens on Stowage," I find at page 374 of my edition the following remarks: "The cargo should be so disposed that the ship may be duly poised and maintain a proper equilibrium, to be neither too stiff, or too crank, qualities equally pernicious. If too stiff, she may carry much sail, whilst her masts are endangered by sudden jerks and excessive labouring. If too crank, she will be unfit to carry sail without the risk of upsetting." The remarks refer more particularly to sailing vessels, but they are almost equally applicable to steamers.

And, first, let us see what amount of cargo this vessel had on board. We are told that she had altogether 12,670 quarters, partly barley, partly rye; now rye is said to be about $2\frac{1}{2}$ per cent. lighter than wheat, and barley about $17\frac{1}{2}$ per cent.; and assuming that there was about equal quantities of rye and barley, the whole cargo would be about 10 per cent. lighter than if it had been wheat; consequently the 12,670 quarters of rye and barley would be about equal in weight to 11,403 quarters of wheat. But Mr. Henderson has told us that 97 quarters of wheat are reckoned as equal to $21\frac{1}{2}$ th tons, so that on this computation the weight of the cargo would be about 2,492 tons.

Add to this the 120 to 130 tons of bunker coals, which she had on board when she left Sulina, and we get a total of about 2,620 tons, and with the engines and boilers, which, I am told, should also be added, namely, at the rate of a ton for each horse-power, or 177 tons more; and we obtain a total of about 2,800 tons of dead weight on board when she left Sulina. When again she left Malta, instead of only 120 to 130 tons of bunker coal, she had nearly 300 tons, which would increase the weight about 170 tons, making the total weight 2,970 tons. Seeing, however, that her gross tonnage was 1,944 tons, this would only give little more than 50 per cent. above her gross tonnage, which the assessors inform me would not, in the case of a good stable vessel, be excessive. Nor must it be forgotten that the whole of the cargo space in the 'tween decks was not chock full; for we are told that there was not more than from a foot to 18 inches of grain on the floor of the rope locker forward, and that there was a space of about 16 feet aft which had no cargo at all in it.

Again, as to the amount of her freeboard, we are told that when she left Sulina she drew 20 feet 6 inches forward and 21 feet 6 inches aft, giving a mean of 21 feet, and that with this draught of water she had a freeboard of 7 feet 6 inches, which would give about 3'37 inches to every foot of depth of the vessel's hold. This freeboard would be slightly less when she left Malta; still, in the opinion of the assessors, it would be amply sufficient for the vessel, assuming her to have been a good stable vessel. There is therefore nothing either in the weight of her cargo, or in the amount of freeboard, which would lead us to suppose that she was overladen, always assuming that she was a stable vessel.

And now let us see what was the ratio of her breadth to her depth, for on this in great measure would depend her stability. According to the copy register she had a beam of 34'2 feet, as against a depth of hold of 25'8 feet, which would give a ratio of depth to breadth of .75 to .76. Now Mr. Seddon, surveyor to Liverpool Lloyd's, has told us that in his opinion a vessel with such a co-efficient would certainly be a tender vessel; at the same time he stated that he had known vessels with a higher co-efficient, and that it varied from .58 to .82. That a passenger ship without cargo in her 'tween decks might have as high a co-efficient as .82 we can well understand, but that a cargo carrying ship with a large quantity of cargo in her 'tween decks should have such a ratio between her depth and breadth, and yet be able to carry her cargo safely, we are not prepared to admit. It must be remembered that this vessel is described as a spar-decked vessel, and that of her gross tonnage of 1,944 only 1,330 tons was under the tonnage deck, and no less than 614 above it; and although the whole of this space was not filled full of grain, the greater part of it certainly was. It should also be added that the top of her tanks was 4 feet 2 inches to 4 feet 3 above the top of the keel, which would tend still further to raise her cargo. It was said, however, that the rye and barley were lighter than wheat, and this was given as a reason why she probably would not be so tender; but, on the contrary, the lighter the cargo the more would its centre of gravity be raised above the keel, and consequently the more tender would the vessel be. Nor was there a single witness who had sailed in her who was prepared to say that she was not a tender vessel; all that the master could say was that she was medium stiff for a cargo laden ship. On the whole, we have come to the conclusion that this vessel was not sufficiently stable to carry the cargo which she had on board, having regard to the season of the year, and to the fact that she would have to cross the Bay of Biscay before reaching this country. It is true that she encountered an exceptionally violent gale, but had she been a more stable vessel, with less depth and a greater breadth of beam, she would no doubt have weathered the gale, as so many other vessels did, even with the cargo which she had on board. The only excuse that could be offered for her was that she had been built in the year 1870, when it was not thought necessary to give vessels so broad a beam.

The next question on which our opinion is asked is, "Whether the engine-room skylight was properly constructed and sufficiently stayed, having special regard to the fact that there were no bulwarks to protect it from heavy beam seas?" The skylight, we are told, was formed of four upright iron plates, connected by angle irons at the corners, and with an angle iron running along the edge inside. The thickness of the plates was $\frac{3}{8}$ ths to $\frac{7}{16}$ ths, but there were no thwart ship stays and no angle irons or vertical stays in the middle to support it. Mr. Seddon told us that he had in one of his surveys carefully examined it, and seeing that it was 14 feet long, and that the sides rose only from 3 feet 6 to 4 feet above the deck, he did not consider that they required any stays in the middle; it was only when they were very long, and when they were about

6 feet above the deck. The result, however, seeing that the full force of a heavy sea was to be met, I think either that they should have had angle irons.

We are then told that the steamship was of Charles E. Merchant Ship.

Now, in our opinion, against the master's cargo. This vessel well provided generally of grain from top to bottom of the keelson, and was fastened. And falling over on the master's cargo, that the Act of God say that the master even though it might be a misfortune or misadventure.

Lastly, we are told that the vessel was

6 feet above the deck, that he considered stays necessary. The result, however, has shown that this was not so; and seeing that the sides of the skylight were exposed to the full force of a beam sea, the vessel having no bulwarks, we think either that the side plates should have been thicker or that they should have been stayed in the middle by stays or angle irons.

We are then asked to say, "Whether the loss of the said steamship was caused by the wrongful acts and defaults of Charles Ellis, the master, (1) in neglecting to secure the cargo from shifting as required by section 22 of the Merchant Shipping Act, 1876?"

Now, in our opinion, no negligence has been proved against the master in connection with the shifting of the cargo. This vessel, like the "Tiara," was exceptionally well provided with shifting boards, far better than the generality of grain carrying vessels, for they extended from top to bottom of the ship from the upper deck to the keelson, and were, so far as appears, well and securely fastened. And if after this the cargo shifted from the vessel falling over on her beam ends it is impossible to hold that the master has been guilty of negligence. I feel quite sure that the Act of Parliament could never have intended to say that the master should be punished if the cargo shifted, even though it was shown that there had been no negligence or misconduct on his part.

Lastly, we are asked whether he is to blame for "Taking the vessel to sea too deeply laden, especially having

" regard to the construction of the said steamship, her high centre of gravity, and consequent lack of stability, the season of the year, and the nature of the intended voyage?" Now, as I said in the case of the "Tiara," it would be too much to expect that a captain should be accurately informed of the position of the centre of gravity of his ship, whether laden or empty, seeing that it involves intricate calculations, dependent upon a number of data, of which the master could know nothing. As a general rule the load line would indicate to him the point, beyond which it would not be safe or prudent for him to load her. In the present case the master sees, when she leaves Sulina, that she is not sunk to the level of the load line, and that she has a freeboard of about 7 feet 3 inches, which, in the opinion of the assessors, would have been ample had the vessel been properly constructed. So far as the master is concerned, he seems to have behaved throughout admirably well, and we have nothing to say against him. The fault lay with the ship herself, with her faulty construction, which rendered her totally unfit to carry even such a cargo as she had on board.

Neither party made any application for costs.

(Signed) H. C. ROTHERY,
Wreck Commissioner.

We concur.

(Signed) GEORGE H. FORSTER, } Assessors.
 JOHN S. CASTLE, }