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C. ROTHERY,
Wreck Commissioner.

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WILLIAM SPOTTISWOODE,
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(No. 1325.)

"BALLINA" (S.S.)

The Merchant Shipping Acts, 1854 to 1876.

In the matter of the formal Investigation held at Liverpool on the 10th, 11th, 28th and 29th of March 1882, before H. C. Rothery, Esquire, Wreck Commissioner, assisted by Captain Grant, R.N., Commander Burney, R.N., and C. W. Merrifield, Esquire, as Assessors, into the circumstances attending the supposed loss of the British steamship "Ballina," of Liverpool, whilst on a voyage from Liverpool to Ballina.

Report of Court.

The Court, having carefully inquired into the circumstances of the above-mentioned shipping casualty, finds, for the reasons annexed, that, although it has not been proved in what way the said vessel "Ballina" was lost, the whole of the crew having perished with her, there is sufficient evidence to shew that when she left Liverpool on her last voyage she was overladen, and that Charles William Pollexfen, of No. 15, Brunswick Street, Liverpool, in the County of Lancaster, the managing owner of the said vessel, is responsible for her having been so sent to sea overladen. The Court accordingly condemns him in the sum of one hundred and fifty pounds (150*l.*) *nomine expensarum*.

Dated this 29th day of March 1882.

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

We concur in the above report.

(Signed) John M. G. Grant,
Henry D. Burney, R.N., J.P.,
Charles W. Merrifield,
} Assessors.

Annex to the Report.

This case came before the Court, at Liverpool, on the 10th and 11th of March 1882, Mr. Howard Smith appearing for the Board of Trade, Mr. Kennedy and Mr. Stewart for the owners of the "Ballina," and Mr. Warr for the owners of the cargo. Thirteen witnesses having been produced by the Board of Trade and examined, the Court, on the application of Mr. Howard Smith, adjourned the case to enable the Board of Trade to produce further evidence. The case again came on for hearing at Liverpool, on the 28th and 29th of the same month, when seven further witnesses having been produced by the Board of Trade and examined, Mr. Howard Smith handed in a statement of the questions on which the Board of Trade desired the opinion of the Court. Mr. Kennedy then produced five witnesses, and recalled the managing owner of the "Ballina," and having addressed the Court on behalf of his parties, and Mr. Howard Smith having been heard in reply, the Court proceeded to give judgment on the questions on which its opinion had been asked.

The facts of the case are as follow:—

The "Ballina" was an iron screw steamship, belonging to the port of Liverpool, of 341 tons gross and 170 tons net register, and was fitted with engines of 121 horse power. She was built at Barrow-in-Furness in the year 1878, and at the time of her loss was the property of Mr. George Thomas Pollexfen, of Ballina, in the County of Mayo, and Mr. Charles William Pollexfen, of Liverpool, in the County of Lancaster, merchants and shipowners, Mr. Charles William Pollexfen being the managing owner. She left Liverpool at about 1 p.m. of the 5th of January last for Ballina, with a crew of 15 hands and a general cargo, amounting, we are told, with the bunker coal, which she had on board, to 296 tons. After passing the Rock Light House she was seen to return up the river, with the object, it is suggested, of pumping the water out of her tanks before she put out to sea, it not having been possible to do so before she left the dock, workmen having been engaged in the engine room up to nearly the last moment. At about 5 p.m. she was observed to proceed down the river again, and from that time she has never been seen or heard of. A few days afterwards, however, a quantity of wreckage, which, it is admitted, belonged to the vessel, and the bodies of three of the crew, were picked up in the neighbourhood of the Isle of Man, and as the vessel never reached her destination there can be no doubt that she has gone down with all hands; and the object of the present inquiry is to ascertain, if possible, what led to her loss.

Now the first question upon which our opinion has been asked is, "Had the Ballina, as designed and constructed at Barrow, sufficient stability?" It seems that the vessel was built for Messrs. Pollexfen by the Barrow Shipbuilding Company, the plans for her construction having been prepared by Mr. James Rode, a consulting engineer and naval architect, residing at Liverpool. Mr. Humphrys, at present the manager of the Brush Light Company, was then the manager of the Barrow Iron Works, and on seeing the plans he suggested certain alterations to be made in them, fearing that, if not, she might prove to be an unstable vessel. Mr. Humphrys' suggestions were, however, not adopted, and she was accordingly finished on the original plans, and, as Mr. Humphrys anticipated, she proved, on being launched, to be a very unstable ship, requiring a good deal of ballast to be put into her to make her stand upright. A good deal of correspondence thereupon passed between the owners and the Barrow Company on the subject, and the vessel being intended for the carriage of passengers and cargo between Liverpool and Ballina, in Ireland, application was made to Mr. Dixon, the Board of Trade surveyor at Barrow, for a declaration to enable them to obtain a passenger certificate, but that gentleman, on testing her and finding that, with 30 tons of ballast in her bottom and on a draught of 9 feet, the height of the meta-centre above the centre of gravity was only 4½ inches, declined to make the required declaration. Mr. Dixon's report to his senior officer, Captain Moody, the principal officer of the Board of Trade at Liverpool, is in these words, "When this vessel was launched I noticed that she was very tender, but expected that when the machinery was put on board it would considerably improve her stability; however, instead of which, she now appears to be much worse, as she could not be shifted afterwards without first putting on board 30 tons of ballast, and notwithstanding this amount in her bottom, she has still too much top-weight;" and in the concluding part of his report he says, "I may further add that this vessel has very high bulwarks, as will be seen by the accompanying sketch; also a hurricane deck, running fore and aft, on the top of which are two steam winches, and deck-house, boats, and all the equipments necessary for working the ship, which I consider makes her very unsafe; therefore, as the vessel referred to is under survey for passenger certificate at this port, I will wait further instructions before granting the declaration." On the receipt of that report Captain Moody wrote as follows:—"The owners will no doubt take care that sufficient permanent ballast is provided to insure the vessel's safety. When you are satisfied of this fact you will please issue a declaration accordingly." It is clear from this that, in Mr. Dixon's opinion, the vessel had not sufficient stability, and he accordingly declined to give the required declaration. Mr. Rode, however, has told us that, not being satisfied with Mr. Dixon's opinion, he tested the vessel, by attaching a rope to the top of her mast and getting a number of men to haul upon it, and that he found her to be a very stable ship. The assessors, however, are of opinion that this was a very unsatisfactory way of testing the vessel's stability, and that, if she had really been a stiff vessel, and a heavy strain had been applied, the probability is that her masts would have come out of her. Mr. Light also, the principal surveyor to Lloyd's Registry at Liverpool, and a witness produced on behalf of the owners, whilst admitting that a vessel with a meta-centric height of only 4½ inches would be very unstable, stated that, in his experience, vessels when first launched and empty, are usually unstable,

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and will not stand upright. In this, however, he was directly at issue with Mr. John Evans, a shipbuilder at Liverpool, and also a witness for the owners, who told us that a steam vessel, when first launched, ought to be stable, and in that opinion the assessors are disposed to concur; they tell me that, whilst a sailing vessel, with her masts and rigging shipped, may often be unstable, a steam vessel, when first launched, ought to be stable, the more so as the putting in of the engines has generally a tendency, by raising the centre of gravity, to render her less stable than before. Mr. Merrifield also tells me that he has gone carefully through Mr. Dixon's calculations, and that they appeared to him to be correct, and to give a meta-centric height of about 4½ inches, which, in his opinion, was wholly insufficient. I may add that we are not disposed to place much reliance on Mr. Rode's estimate of the vessel's stability, seeing that, according to his own admission, the vessel, as built, drew six inches more water than he had anticipated, and if his designs were faulty, as regards the vessel's draught of water, they might have been equally in error as regards her stability. On the whole we are of opinion that the "Ballina," as designed and constructed at Barrow, had not sufficient stability.

The next question that we are asked is, "Had she sufficient stability, after being lengthened at Liverpool, apart from any cargo she might have to carry?" After the vessel was launched, a long correspondence took place between the owners and the builders as to who was responsible for the vessel's want of stability, and it was then suggested by the Barrow Company that, with a view to increase her stability, she should be lengthened about 25 feet, and a water ballast tank capable of containing about 40 tons of water should be constructed in the bottom. To this the owners assented, not, as Mr. Pollexfen has told us, with a view to increase her stability, but to obtain a larger carrying capacity with less draught—an error of six inches in the draught having, as we have said, been made by Mr. Rode in designing the vessel. The contract to lengthen her was first offered to the Barrow Company, but their estimate was not accepted, and she was then brought round to Liverpool and placed in the hands of a very respectable firm of shipbuilders, by whom she was lengthened 24 feet 6 inches, and a water tank was placed in her bottom capable of containing about 40 tons of water; this was in addition to two small tanks which she already had in the fore and after parts of the vessel, which would hold about seven and ten tons respectively, but which were intended for the purpose of trimming her by the head or stern according to circumstances. On the alterations being completed, estimates of her stability were made by Mr. Hamerton and Mr. Carlisle, two Board of Trade surveyors at Liverpool, and we have their calculations before us, from which it would appear that according to Mr. Hamerton, the metacentric height had by the lengthening been raised to 7 inches; according to Mr. Carlisle to 1 foot 3 inches. The tests on which these estimates were formed appear to have been made by Mr. Hamerton alone, and I am told by Mr. Merrifield that there are such serious errors in his calculations that it leads us to doubt whether the tests were properly applied, and to question how far it would be safe to place too much reliance upon them. Whether indeed the lengthening the vessel would materially add to her stability may fairly be open to question. Mr. Light, one of the owners' witnesses, told us that, having carefully examined all the plans, he had come to the conclusion that the stability of the vessel would be increased by her being lengthened, but only to a small extent; and in that opinion Mr. Merrifield is disposed to concur. Although then the lengthening of the vessel at Liverpool may have added to her stability, we are not prepared to say that it gave her sufficient stability apart from any cargo which she might have in her.

The third question which we are asked is, "As finally constructed at Liverpool, and assuming that she had on board a sufficient quantity of cargo, and that the same was properly stowed, would she have had sufficient stability?" No doubt she would, if she had had a sufficient quantity of cargo, and of the proper description, and if it had been properly stowed; for she might have had pigs or bars of iron stowed in her bottom, which would soon have given her the requisite amount of stiffness.

The fourth question which we are asked is, "Had she sufficient stability on leaving Liverpool on the 5th of January 1882?" Mr. Light told us that according to Mr. Dixon's calculations it appeared that the vessel's centre of gravity, before she was lengthened, and with 30 tons of sand ballast in her, would be about 10 feet above the bottom of the keel; and that in his opinion 40 tons of water in her ballast tank, after she had been lengthened, would be about equivalent to the 30 tons of sand ballast which she had in her, before she was lengthened, thus leaving the centre of gravity unaltered. Taking then the cargo, according to the information furnished to him by the owner of its weight and disposition, he had estimated that its centre of gravity would be about 7 feet above the bottom of the keel; and that the centre of gravity of ship and cargo with the water tank full would be about 8 feet 10 inches above the bottom of the keel. And assuming the vessel to be then drawing 12 feet of water, that would put the centre of gravity of the whole about 3 feet 2 below the surface of the water. He then said that the emptying of the ballast tank, which it is said they began to do immediately on leaving dock, would lift the centre of gravity of the whole about 6·24 inches, and would at the same time raise the vessel 5·7 inches in the water; thus bringing the centre of gravity about a foot nearer to the surface of the water, or within 2 feet 2 inches of it. Mr. Light was asked where he would put the metacentre; for the stability of a vessel depends of course upon the height of the metacentre above the centre of gravity: but he told us that he had not estimated it. Mr. Merrifield, however, has done so, and has found that on a draft of about 12 feet the metacentre would be about 1·27 feet below the surface of the water, and with a draught of 11 feet 6 inches about 9 inches below the surface. The difference then between the centre of gravity and the metacentre would be about 1 foot 5, which in Mr. Merrifield's opinion would be insufficient. The conclusion, therefore, to which we have come is that the vessel, when she left Liverpool on the 5th of January last with the cargo, which she had on board, and with her ballast tank empty, had not sufficient stability. And of course, if the two small ballast tanks it the fore and after parts of the vessel had likewise been emptied, her stability would be still further diminished.

The fifth question which we are asked is, "Was her load line placed at a sufficient distance below the deck, and was her owner, Mr. C. W. Pollexfen, justified in loading the vessel down to it?" It is admitted in this case that the load line was placed at 1 foot below the upper line of the deck; it seems to have been placed there by the builders, in pursuance of written instructions from Mr. Pollexfen, and does not appear to have been altered; and the question that we have to consider is, whether, in the event of the vessel being loaded down to it, she would have a sufficient clear side. It was said by Mr. Kennedy that it is often a very difficult question to decide what amount of clear side a vessel ought to have; but there are cases in which no such difficulty arises, and this is perhaps one of those cases. Now in estimating the amount of freeboard which this vessel ought to have, I think that we must regard her as though she was a flush-decked ship; for although it is true that she had a short poop, a raised forecastle, and a shelter for cattle, neither of these ought, in Mr. Light's opinion, to be taken into account, either for spare buoyancy or for freeboard, the forecastle having doors opening on to the main deck, and the cattle shelter having two large openings extending from side to side, and from 9 feet to 10 feet wide each, the one in the fore part, the other in the after part, through which the sea would find its way on to the main deck. This is the opinion of Mr. Light, Lloyd's surveyor at Liverpool, a gentleman of very large experience, and a witness for the owner. Let us see, then, what freeboard a flush-deck vessel of her dimensions ought to have. We have now three tables for estimating freeboard, one recently issued by the Board of Trade, a second published under the authority of London Lloyd's, which has been recently revised, and a third by Mr. Rundell, of the Liverpool Underwriters' Association; and it may be well to see what is the minimum freeboard which this vessel ought to have had, according to these respective tables. Taking first the Board of Trade tables, we find that a vessel of her dimensions should have, for a winter voyage, two inches to every foot depth of hold; and as the hold was 11·4 feet deep, she should have had for this voyage a freeboard of 1 foot 10¾ inches. Taking next Lloyd's rules, we find that this vessel, having a co-efficient of fineness of ·63, and a moulded depth of about 12 feet, should have had a freeboard of not less than 1 foot 10 inches. Lastly we have Mr. Rundell's tables, according to which she should have had a freeboard of 2 feet 0¼ inch. It will thus be seen that all these authorities agree in thinking that the minimum freeboard which this vessel

should have had was from 1 foot 10 to 2 feet. We can therefore have no hesitation in saying that, for a water voyage, one foot of clear side would not be sufficient.

The next question which we are asked is, "When she left Liverpool on the 5th January 1882 was she overloaded?" It has not been very satisfactorily shewn what was the amount of cargo which she had on board, nor her draught on leaving the dock, nor her freeboard, there having been an evident disinclination on the part of the owner and his servants to furnish these particulars, when called upon by the officers of the Board of Trade to do so. Some indeed of the owner's witnesses have stated that when the vessel left the Clarence Basin, and when, as it is admitted, the water ballast tank was full, the vessel's load-line was well out of the water, some 5 or 6 inches. On the other hand, Mr. Balmer, the pier master, who saw her go out, and a man named Dutton, who painted the disc on her side, and who also saw her leave the basin, told us that the belting of the ship was then under water; and as the load-line was painted on the belting, that would put the load-line under water; and the evidence of Mr. Westaway, a Board of Trade surveyor at Liverpool, and a witness produced on behalf of the owner, goes far to confirm that of Balmer and Dutton. He told us that he had taken the vessel's draught on several occasions when she was leaving port, and that he took it on the 15th February 1881, when he found her draught to be 9 feet 3 inches forward and 13 feet 3 inches aft, giving a mean of 11 feet 3 inches, and on this occasion we find that she had 257 tons on board. He took it again on the 15th June 1881, when he found her draught to be 10 feet 8 forward and 12 feet aft, giving a mean draught of 11 feet 4 inches, and the quantity of cargo which she then had on board, including the bunker coal, appears to have been 258 tons. Now we were told that it was the invariable practice to pump out the ballast tank before leaving the basin, and that the only reason why this was not done on the last occasion of all, was because they were engaged on the engines up to nearly the last moment. Judging then from the two instances given above, I think that we may fairly say that with 257 or 258 tons on board, including bunker coal, and with her ballast tanks empty, she would draw 11 feet 3 or 11 feet 4 inches; but when the vessel left Liverpool on the 5th of January last, not only had she 40 tons more cargo on board, but there were 40 tons of water in her ballast tank, and no doubt the two smaller tanks, containing 7 and 10 tons respectively, were also full; and, as we are told by Mr. Light, that 40 tons would sink the vessel very nearly 6 inches, we may fairly assume that with the 40 tons of cargo additional, the 40 tons in the large ballast tank, and the 17 tons in the two smaller ones, she would draw some 14 or 15 inches more than she had done on the 15th of February and 15th of June 1881, when her draught was taken by Mr. Westaway, thus making her draught, as she moved out of the basin on the 5th of January last, about 12 feet 6. But Mr. Rode has told us that the total depth of the vessel at side, from the bottom of the keel to the top of the deck, was 13 feet 4½ inches, so that she would have had a clear side of only 10½ inches; and as the load-line was placed on the belting, at 12 inches below the deck, both the load-line and the belting would be below the water, thus confirming the evidence of the pier master, and of Dutton.

And now let us see what freeboard she would have had when she got out to sea. Assuming that all the tanks were pumped out before she left the river, this would lift her some 8 or 9 inches, thus giving her a freeboard of 1 foot 7 to 1 foot 8; but if, according to the authorities which we have quoted, she ought to have had a minimum freeboard of 1 foot 10 to 2 feet, it is clear that with only 1 foot 7 to 1 foot 8 inches she would have too little. It was said indeed that she had often had larger cargoes on board, and had carried them safely, and that on one occasion she had a weight of no less than 408 tons of cargo and bunker coal on board, or about 112 tons more than she had on her last voyage, and it may be well to see what clear side she would then have had. Assuming that with 296 tons she would have a freeboard of 1 foot 7 to 1 foot 8 inches, we should have to deduct about 16 inches from this for the additional 112 tons, the displacement on this draught being, we are told, about 7 tons to the inch, leaving her with a freeboard of only from 3 to 4 inches, and if so she would in our opinion have been grossly overladen.

The seventh question which we are asked is, "Was her cargo properly stowed?" So far as appears, the cargo was properly stowed, the heaviest portion of it being put below, and the lighter part above; but what she wanted was greater weight in the bottom, so as to give her more stability and a greater metacentric height.

The eighth question which we are asked is, "Was she, with regard to the condition of her engines and steering gear, fit to proceed to sea?" No doubt there were men at work in the engine room until nearly the last moment, and this seems to have raised a suspicion that she went to sea in an incomplete condition; but we have the evidence of Fleming, Messrs. Rollo's foreman, that everything was finished in the engine room before she left. As regards the steering gear, the only evidence is that of a man, who was not a seaman, who casually saw the chains before they were attached to the wheel, and whose evidence therefore would hardly be sufficient to show that the steering gear was in an incomplete state.

The ninth question which we are asked is, "What in the opinion of the Court is the probable cause of the loss of the vessel and of the lives of her crew?" It was suggested by Mr. Kennedy that she might possibly have gone down after collision with some other vessel. No doubt that is possible; at the same time there is in our opinion sufficient to account for her loss without its being necessary to suppose that two vessels have come together and foundered, without any one having been left to say how it occurred. It is in evidence that on the night after she left Liverpool it blew a gale of wind in the Irish Channel. We have seen too that, laden as she was, she was unstable, and that owing to her construction, and the large apertures in her shelter deck, she would be very liable to take in large quantities of water on to the main deck, which would destroy her residuum of stability, and cause her either to go over or to founder. Whilst then we have no direct proof as to what has become of her, we have little doubt that she foundered in the gale which she encountered on the night after leaving Liverpool.

The tenth question which we are asked is, "Is Mr. C. W. Pollexfen, her owner, to blame for the said loss?" Mr. Pollexfen had full warning from the first that the vessel was an unstable vessel; and he ought therefore to have seen that she was loaded with the greatest care, instead of which he left it, according to his own account, entirely to the master to load her as he thought proper. The master is not here to answer for himself, but it is clear that Mr. Pollexfen has neglected the duty imposed upon him by the Act of Parliament, which is to see that his vessel is not sent to sea in an unseaworthy state. He tells us that she had gone to sea on at least 50 occasions with heavier cargoes; if so, it only shews that he has sent her not once, but repeatedly to sea overladen and in an unseaworthy state.

The Court accordingly on the application of counsel for the Board of Trade, comdemned Mr. Charles William Pollexfen, the managing owner, in the sum of one hundred and fifty pounds (150*l.*) *nomine expensarum.*

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

We concur.

(Signed) John M. G. Grant,
Henry D. Burney, R.N., J.P.,
Charles W. Merrifield,
} Assessors.

In the matter of a formal Investigation held at Liverpool on the 10th, 11th, 28th, and 29th days of March 1882, before Henry Cadogan Rothery, Esquire, Wreck Commissioner, assisted by Captain J. F. G. Grant, R.N., Commander Burney, R.N., and C. W. Merrifield, Esquire, as Assessors, into the circumstances attending the supposed loss of the steamship "Ballina" of Liverpool.

The Court orders that Charles William Pollexfen of No. 15, Brunswick Street, Liverpool, in the County of Lancaster, the managing owner of the said late vessel "Ballina," do pay to the Solicitor to the Board of Trade the sum of one hundred and fifty pounds (150*l.*) on account of the expenses of this Investigation.

Given under my hand this 29th day of March 1882.

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