

(No. 204.)

“DANAÆ,” (S.S.)

The Merchant Shipping Acts, 1854 to 1876.

In the matter of the formal investigation held at Westminster, on the 28th and 29th January 1878, before H. C. ROTHERY, Esquire, Wreck Commissioner, assisted by Commander FORSTER, R.N., and Captain JONES, as Assessors, into the circumstances attending the foundering of the steamship “DANAÆ,” of North Shields, whilst on a voyage from Copenhagen to London with a cargo of wheat, about 30 miles from the Horn Reef, on the coast of Denmark, on the 25th December 1877.

Report of Court.

The Court, having carefully inquired into the circumstances of the above-mentioned shipping casualty, finds, for the reasons stated in the annexed judgment, that the loss of the said ship was due,—

- (1.) To her defective construction.
- (2.) To her being overladen.
- (3.) To the insufficient depth of her shifting boards.
- (4.) To the sluices between the engine-room and main hold having been left open.

The Court holds Thomas Hutchinson Smith, the master of the “Danae,” to blame for the vessel being overladen, for the insufficiency of the shifting boards, and for having allowed the sluices between the engine-room and the main hold to remain open. And for these wrongful acts and defaults it suspends the certificate of the said Thomas Hutchinson Smith for six months, but recommends that during the period of such suspension he be allowed a first mate’s certificate.

The Court makes no order as to costs.
Dated this 29th day of January 1878.

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

We concur in the above report.

(Signed) GEORGE H. FORSTER, } Assessors.
HENRY JONES, }

Judgment.

The Commissioner.—This is an inquiry into the circumstances attending the foundering of the British steamship “Danae,” of North Shields, which occurred on the 25th ultimo, about 30 miles north-north-west of Horn Reef on the Danish Coast.

The “Danae” was an iron screw steamship of 1,156 tons gross and 744 tons net register, fitted with two engines of 98 horse-power, and was classed A 1 at Lloyd’s. She was built at Sunderland in the year 1873, and at the time of the casualty which forms the subject of the present inquiry was the property of Mr. Joseph Robinson, of 106, Howard Street, North Shields, and other gentlemen, Mr. Joseph Robinson being the principal and managing owner. Mr. Robinson, who was examined before us as a witness, told us that she had originally cost 17,000*l.*, and that at the time of her loss she was insured in that amount.

Having taken on board two-thirds of a cargo of grain at Revel, she proceeded to Port Baltic, where she took in the remainder, and left that place on the 14th of December last, bound to Copenhagen for orders. Her cargo when completed consisted of 9,487 chetwerts of wheat, which, we were told by the master, was equivalent to about 1,480 or 1,490 tons, and she drew 17 feet forward and 19 feet aft. Her crew consisted of 19 hands all told. She reached Copenhagen on the 17th, left again on the 20th, and at noon of the 21st came to anchor under the Skaw, the weather at the time blowing a strong gale from the westward. And I may observe in passing that the nautical gentlemen by whom I am assisted see no reason to blame the master for having brought up at Skaw; they think that it was a prudent and proper measure on his part to stay there until the gale passed over. On the 23rd, the weather having moderated, and the wind being from the north, she proceeded on her voyage, and on the 24th she encountered a gale from the south-west, which by midnight had increased to a hurricane. Shortly afterwards the wind suddenly chopped round to the north-west, blowing as violently as

before. At 2 a.m. of the 25th the vessel, which had had a slight list to port from the time of leaving Port Baltic, was observed to have perceptibly increased that list, and at 2.50 a.m., according to the helmsman, the list was so great that the ship had become unmanageable, and she fell off into the trough of the sea. At 3.45, according to the official log-book, she shipped a heavy sea, which carried away part of the chart room, wheel house, lamp room, and watercloset, and entirely gutted the berths underneath the bridge, starting the water-tight iron bulkheads between the bunkers and the main deck, and lifting the bridge deck several inches, so as to allow a quantity of water to pour down through the bunker into the engine-room. At 5 a.m., according to the official log-book, it was observed that the tarpaulin over the after hatch of the main hold was adrift, and it is said that some water thus got down into the cargo.

In the meantime the pumps had been set to work to pump the water out of the stoke hole, but the list increasing, and the vessel settling down by the head, it was found impossible to keep the water under, and the vessel gradually fell over until she was on her beam ends. At about 1 o’clock p.m. signals of distress were hoisted, and orders were given to launch the boats. In doing so two of them became damaged, but the third was safely launched, and all the men got into her, and were taken on board a fishing smack that was near called the “Smiling Morn,” by which they were ultimately taken to Hull. The vessel herself, we are told, foundered within two hours after the crew had left her.

On the completion of the evidence of the witnesses from the “Danae,” the Board of Trade preferred charges against the master for having by his misconduct contributed to the loss of this ship. No charge is made against the master and crew for having abandoned the vessel when they did, but the charge is that the master by his neglect and misconduct placed the vessel in such a position that her abandonment was inevitable.

Mr. Bowen has observed that this case is probably one of the most important cases that has ever come before the Court, involving as it does the construction of steamers engaged in the carriage of so dangerous a cargo as grain in bulk, the arrangement of the holds, and the depth of the shifting boards, and a variety of other points. Before, therefore, I proceed to state whether in the opinion of the Court the charges have or have not been established, it may be well to dispose of some of these questions, and I do not think that I can do better than follow the order in which Mr. Bowen has so clearly and ably laid the case before us.

The first point to which Mr. Bowen directed our attention was the construction of this vessel, and her capability for carrying grain cargoes. From a rough plan made by the master, and from the plans of a sister ship called the “Nuphar,” belonging to the same owners, which have been laid before the Court, we have been able to form a pretty clear idea of the form and construction of this vessel. It seems that she had two holds, a fore and main hold in one, and an after hold; between them was the engine-room. Extending under the main and after holds were tanks, which could be filled with water to act as ballast when the ship was empty, but would be empty when the vessel was laden. The tank under the main hold was 1 foot 6 inches deep, and would contain 160 tons of water, that under the after hold was 1 foot 10½ inches deep, and would contain 86 tons of water. It need hardly be said that on the occasion in question these tanks were empty.

I must now call attention to other parts of this vessel’s construction, which appear to us to have materially contributed to the loss of this vessel. On examining the copy register, which has been put in, it will be seen that above the tonnage deck this vessel had, first, a brake of 38·93 tons; then there was the bridge space containing 155·59 tons; then the chart room upon the bridge of 4·3 tons, and berths, &c., of 4·10 tons; in all she had above the tonnage deck erections of different kinds with a capacity of above 203 tons, and this too with a tonnage under the tonnage deck of only 953 tons. It is obvious that such a construction, such an amount of top hamper, the greater part of which was intended for cargo and bunker coal, taken in conjunction with the empty ballast tanks below, would not conduce very greatly to the vessel’s stability.

But this was not all, for forward of the bridge space extended the main deck, uncovered, but flanked on each side with solid iron bulwarks, affording an admirable trap for catching any seas which might break over her bows, and holding them there too, whereby the bows of the vessel would necessarily be forced down. Such a vessel,

especially if deeply laden, would not, it need hardly be stated, be very well adapted to encounter the storms which might naturally be expected in winter time in the North Seas.

This then leads us to the second head of Mr. Bowen's remarks, was this vessel, or was she not, overladen? We are told that her cargo consisted of 9,487 chetwerts, which, according to the master, was equivalent to 1,480 or 1,490 tons. According, however, to a calculation which the assessors have made for me, 9,487 chetwerts of wheat would, according to one mode of computing it, give 1,610 tons, according to another 1,541 tons. But assuming it, according to the master's statement, to have been only 1,500 tons, here we have a vessel with a net registered tonnage of only 744 tons, carrying a cargo of some 1,500 tons of wheat, not in summer but in the middle of the winter. *Prima facie*, therefore, I think it will be said that she was overladen.

But it was said that she could not have been overladen, for that her load line was above water. Now it must never be forgotten that the placing of the load line on the vessel's side is left entirely to the owner; he may place it where he pleases; he may place it if he likes on a level with the main deck, or he may place it even above the deck; and if he does so, the Legislature has given the authorities no power to interfere with him. No doubt if the vessel was leaving this country, and it was seen that she was overladen, the authorities might prevent her leaving, no matter where her load line was, but they would have no right whatever to stop that vessel, even if she had her load line on her side in such a place that if loaded down to it she could hardly cross a millpond in safety. This fact therefore must not be overlooked when we are told that the load line was not submerged. The vessel might be grievously overladen, and yet the load line be well out of the water.

And now let us inquire where this load line was placed. According to the official log-book, the load line was just 2 feet 1½ inches below the level of the main deck, and when she left Port Baltic this load line was nearly 2 inches above the water, giving her about 2 feet 3 inches, or 27 inches of freeboard. On her arrival at Copenhagen, owing to the difference in the water, and to the consumption of coals, she was, according to the captain, about 5 inches higher. The assessors, however, think that the difference would not be so great, and that probably she would have lightened about 2 to 3 inches. Her freeboard then on leaving Port Baltic would be, say about 27 inches, and on leaving Copenhagen from 30 to 31 inches. Now the vessel drew 17 feet forward and 19 feet aft, or a mean of 18 feet; and the depth too of her hold was 18 feet 2 inches. She would thus have a freeboard of 1½ inches to the foot on leaving Port Baltic, and about 1¼ inches on leaving Copenhagen. Now I am advised by my assessors that such an amount of freeboard is quite insufficient for a vessel of her build and construction; that it is such a freeboard as would not be sanctioned by Lloyd's, nor by the authorities in this country, had she been loaded in this country. I am told that the lowest freeboard that would be sanctioned in this country for a vessel of this description would be 2-2 inches per foot, which both on the mean draft and on the depth of the hold would give about 3 feet 3, or about 40 inches, instead of 27 inches and 31 inches. I think therefore we are justified in saying that, looking to her freeboard only, this vessel was laden to a depth to which she ought not to have been.

But, secondly, it was said that previous voyages she had been laden quite as deeply as on this. Even if this were so it is no evidence that she was not overladen on this occasion, for she might have been equally overladen on the previous occasions. The only evidence which we have of the depths to which she was laden on previous voyages is to be found in the official log-book relating to the voyages which she performed since leaving Shields. From that I find when she left Shields she drew 16 feet 6 inches forward, and not 17 feet. It is true that on leaving Cronstadt for Rotterdam she drew 17 feet forward and 19 feet aft, the same as on her last voyage; but what was the result? We find that in the course of that voyage, on the 12th of November last, she encountered a gale of wind, and so unfitted did she seem to be to contend against it that she sustained on that occasion very considerable damage, not very unlike that which she met with on her last voyage; and it seems to have been almost an accident that she did not founder on that occasion. I think therefore that we may safely dismiss from our minds the inference that she was not overladen on this occasion, which the counsel for the owners sought to draw from the fact that she has been navigating for the last five years with cargoes equally heavy without having foundered. We have no evidence before us as to how

many times she barely escaped foundering, when laden as she was on her last voyage.

I now come to the third head of Mr. Bowen's argument, namely, did this cargo shift? The captain says it did not, the majority of the crew say that it did. In this conflict of opinion, it being only a question of opinion, it may be well to see what precautions were taken to prevent the cargo shifting, precautions which the Act of Parliament imposes on the master, and the responsibility for which, in the present case, rests almost entirely with the master, there being no stevedore employed, and the managing owner being in this country. The master has told us that along the centre of the ship ran a row of iron stanchions, the upper parts of which were doubled so as to hold the shifting boards placed in them, and which were then securely wedged on each side. The stanchions were at, we are told, a distance of from 6 to 7 feet from one another, except in the way of the hatches, where the intervals would of course be greater, and there the shifting boards had the additional support of shores from each side. Now the principal question was, to what depth these shifting boards extended, but this it was almost impossible to discover. According to the master the shifting boards were five planks deep, and if we assume that each plank was 11 inches in depth, that would give a depth of 4 feet 7 inches, to which would have to be added the depth of the beams under the main deck, some 8 to 10 inches, making a total of something like 5 feet 3 inches to 5 feet 5 inches below the main deck. On the other hand, one of the witnesses said, and he was a man who had assisted in fixing the shifting boards in the main hold, that they were only three planks deep between the hatches, but that in the hatches they were five planks deep. If this evidence is to be relied on we should have a depth of only between 3 and 4 feet between the deck and the bottom of the shifting boards. The managing owner, too, who ought to know the depth of the shifting boards, and who has been examined to-day, has told us that in his opinion they were about 4 feet deep; whether this was in addition to or exclusive of the depth of the deck beams is not quite clear, but let us assume that the shifting boards extended 4 feet below the bottom of the beams, this would give a depth of less than 5 feet in all. Now the depth of the hold, we are told, was 18 feet 2 inches, and deducting from that the depth of the tank, which was about 18 inches, that would leave 16 feet 8 inches as the depth of the hold available for the cargo. Now, is this, or is it not, a sufficient depth to prevent the shifting of the cargo? Judging from the regulations issued by Lloyd's agents for the stowage of cargoes at Montreal and at New York, we should be inclined to think that it is not sufficient, for in those regulations it is said that the shifting boards are to extend at least 6 feet downwards, and to be fitted tight to the deck. Without then laying down any hard and fast rule as to the depth to which shifting boards ought to be carried down, we think that if they extended, as the owner states, only between 4 and 5 feet from the deck, they were not sufficient to prevent the shifting of this cargo. Mr. Wake, indeed, the first officer, who it seems has had an experience of something like 19 years in the grain trade, told us that he had never known a cargo of grain in bulk which had not shifted; he added, however, that he had never seen any vessel with shifting boards carried lower down than they were in this vessel. Probably that may account for the fact of the cargoes on board the vessels on which he has been having always shifted. All, however, that we can say is this, that if it is the universal practice for grain cargoes in bulk to shift more or less, there must be something radically bad in the mode of fixing the shifting boards, and the sooner it is altered the better in order to prevent this great risk to life and property. That there are modes of preventing the cargo from shifting there can be no doubt whatever. Mr. Gibson has stated that even if the shifting boards were carried from the deck down to the bottom of the hold it would not prevent the cargo, if it settled, from shifting. No doubt it would not prevent the portion of the cargo which was on the port side of the shifting board from shifting over to the port side of the ship, or that on the starboard side of the shifting board from shifting to the starboard side of the ship; but that is a very different thing from allowing the cargo on the port side from shifting over to the starboard side, and that on the starboard side from shifting to the port side; the latter, if carried to any considerable extent, would almost certainly insure the loss of the vessel, the former would not. There are, however, other means by which cargo in bulk can be prevented from shifting, namely, by having two rows of bulkheads, and which, I am told, is perhaps a better mode than carrying the bulkhead from top to bottom.

But Mr. Wake also told us that the only vessels that he had been on board of in which the cargo did not shift, were

those which carried a portion of their cargo in bags, and that this, in his opinion, was the only effectual security against the cargo shifting. That this is so may also be deduced from the instructions issued by Lloyd's agent for stowing grain cargoes at Montreal. There I find it stated that, "no ship exceeding 400 tons register can be entirely loaded with grain in bulk, but a ship exceeding 400 tons register may take two-thirds of a cargo of grain in bulk and one-third in bags." Again, I find in the instructions issued for stowing cargoes at New York, a somewhat similar direction in these words: "No vessel exceeding 400 tons register should be entirely loaded with grain in bulk; exceeding 400, and not over 500 tons, she may take two-thirds of her cargo in bulk and one-third in bags; all over 500 tons can only be allowed to take half her tonnage in bulk." Now if this vessel, whose registered tonnage was 745 tons, had been subject to these rules she would have been bound by the New York rules to have taken half her cargo in bags, and according to the Montreal rules one-third of it in bags. Whether any similar regulations prevail for the Baltic trade I am not informed, but it would seem from the experience of this and other cases which have come before the Court, that possibly some such regulation may be as necessary in the Baltic trade, especially in the winter season, as they are at other ports. And it may well be doubted whether it is safe for these large steamers to carry the whole of their cargo in bulk, even from the Baltic, the danger arising from the shifting of the cargo increasing much more than in proportion to the size of the ship.

The conclusion then to which we have come is, that the shifting boards in the "Danae" were not sufficient to secure the cargo against shifting; that it did shift, and that this was the proximate cause of the loss of the vessel. Nor has the master any excuse for not having carried them lower down, for he had on board some planks which he might have applied, if he thought fit, for the purpose, and as Mr. Gibson stated, it could be no question of expense, for planks could be bought very cheaply at Revel, and would probably fetch more on the arrival of the vessel in this country than the original cost price. It was therefore no question of expense, it was simply ignorance or carelessness which prevented the master adding to the depth of the shifting boards.

This then brings us to the last point raised by Mr. Bowen, how, if the cargo did not shift, does the master account for the vessel having gone over on her beam ends and foundered? His theory is that the cargo on the port side having become wetted, gave the vessel a list to port; that as the water increased it would run over to the port side, making that side heavier, and thus she would list more and more and finally go over on her broadside. But the objection to this theory is that we have a difficulty in seeing whence the water came which caused the initial list to port. According to the evidence the vessel had a serious list to port long before she began to take in any water. According to the evidence of the helmsman it was as early as 2.30 a.m. that the ship had such a list as to render her almost if not quite unmanageable. Again, we have the evidence of the engineer, who was called at 3 o'clock, that at that time the vessel had a very serious list. Lastly; we have the evidence of the first mate that when he was called at 4 o'clock, the vessel was lying with her lee deck in the water. Now the first time that we hear of the vessel having any water in her was after 3.45 a.m., when a sea broke over the waist starting the bulkhead from the bridge deck, whereby a large quantity of water passed down through the bunkers into the engine-room. Before this time there is not a particle of evidence to show that the vessel was making any water, indeed, the chief engineer told us that when he was called and went into the engine-room at 3 a.m. there was no water in the stoke hole, for he could see the roses of the pumps at the bottom of the ship. Nor, indeed, was it until 5 a.m. that the tarpaulin was found to have been torn off the hatch, by which no doubt some water would get to the grain in the main hold, but no great amount, for the hatch itself was never torn off, and the only water that would get down would be through the interstices. How then came the vessel to have a serious list as early as 2.30 if the water did not get into the engine-room before 3.45, and if the tarpaulin was not torn off until nearly 5 a.m.? It is clear therefore that the list was due not to the wetting of the cargo, but that it could only be owing to the fact that the cargo had shifted.

In the course, however, of the master's examination, it turned out that the sluices between the engine-room and main hold were open, and no doubt when the water in the engine-room had risen above those sluices, it would naturally flow through into the main hold. And a question then arose, how it was that those sluices had been left open? It seems that it was the invariable practice on board this vessel to leave these sluices permanently open, the object

being, we are told, to allow the water to flow from the holds into the engine-room, whence it could be pumped out. So much was it the habit to keep these sluices open, that during the whole time this master had been in command of the vessel, and ever since her departure from Shields, it is not pretended that they were ever tried to see if they were in working order, except once or twice the port sluice, but the starboard sluice was never tried at all. Now if when they began to make bad weather those sluices had been shut down, being opened only from time to time to see if there was any water in the holds, and to let it run into the stoke hole, it is abundantly clear that the water, when it accumulated in the engine-room, would have been prevented flowing into the main hold, which would no doubt wet the grain on the port side, the vessel having already a severe list to that side, and tend to increase the list. If these sluices are to be kept always open, we are at a loss to understand what the object of the watertight compartments was. In our opinion it was the bounden duty of the captain to see that these sluices were in proper working order, and that they could in case of need be readily closed, but this he does not appear to have done. When the witnesses told us that it was necessary to allow those sluices to remain open always in order that the water from the hold might find its way into the stoke hole, they can hardly have remembered that they were addressing a Court, which is assisted by two nautical gentlemen of large experience, who have known for many years how these vessels ought to be managed. Now it is not pretended that the vessel was making any water in the main hold; there was, therefore, no reason at all why those sluices should not have been shut down the instant the bad weather came on. They might have been raised during each watch to allow any water that there might be in the hold to run out, but to leave them permanently open was to expose the vessel to almost certain destruction, for the water, when it got into the engine-room, would necessarily pass through them into the main hold, and saturate the wheat there, and as the vessel was already listed over to port, it would assist in carrying her over, and ultimately cause her to fall on her beam ends and sink.

The conclusion then to which we have come is that the loss of this vessel was due, first, to her defective construction; secondly, to her being overladen; thirdly, to her having had insufficient shifting boards; and fourthly, to the sluices between the engine-room and the main hold having been left open. This is not the first case of the kind that has come before the Court, and had the "Smiling Morn" most fortunately not been at hand it is more than probable that we should never have heard of the vessel again, as they would all have perished, as the crews of so many other grain vessels have done before them. Now for the acts and omissions which have led to the loss of this vessel and her cargo, we consider that the owner and the master are almost equally culpable, and the Legislature has said that they shall be held equally responsible. As regards the owner this Court has no power to deal with him, but it can and will punish masters who are ready and willing to make themselves instruments to carry out this selfish policy of owners. This master knew, or ought to have known, from the experience of the previous voyage, that to load the vessel down to 17 feet forward and 19 feet aft was to load her too deeply; he might, if he had thought fit to do so, have extended the shifting boards lower down, as there were plenty of planks on board for the purpose; he ought to have seen that the sluices were in proper working order, and that they were shut down when the bad weather came on. For all these acts and omissions we think that this master is greatly to blame; and we should not be doing our duty unless we punished him severely, so severely as to be a warning to others. It may seem hard to punish this man, when equal if not greater blame rests with the owner; but the Court is determined, so far as it can, to put a stop to this reckless and wanton destruction of life and property, and the only way in which it can do so is by punishing the masters. If masters know that by overloading vessels, even though they should not load them down to the load line, they will be liable to be punished by this Court. Owners will find a difficulty in obtaining masters to take charge of vessels which are unfit for the service on which they are employed.

We shall suspend this master's certificate for six months, but we shall at the same time recommend to the Board of Trade that during the period of this suspension he be allowed a mate's certificate, during which we trust that he will learn that discretion which is so essential to those who have the lives and property of others entrusted to their care.

(To Mr. Bowen.) You do not ask for any costs?

Mr. Bowen.—No, sir.

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