

(No. 7584.)

"RIVER MEANDER" (S.S.).

The Merchant Shipping Act, 1894.

In the matter of a Formal Investigation held at the Moot Hall, Newcastle-upon-Tyne, on the 18th, 19th, 20th, 21st, 22nd, 24th and 25th days of February, 1913, before FREDERICK PAGE, M.A., M.D., D.C.L., and DAVID THOMAS HOBKIRK, Esquires, two of His Majesty's Justices of the Peace, acting in and for the City and County of Newcastle-upon-Tyne, assisted by Commander C. K. McINTOSH, R.N.R., and Captain H. E. BATT (Nautical Assessors), and Mr. W. H. BRODRICK, M.I.Mech.E. (Engineer Assessor), into the circumstances attending the abandonment of the British steamship "RIVER MEANDER," of London, on a voyage from New York to Barcelona, in or near latitude 39° 59' N., longitude 63° 40' W., North Atlantic Ocean, on the 30th day of November, 1912.

Report of Court.

The Court having carefully inquired into the circumstances attending the above-mentioned shipping casualty, finds for the reasons stated in the Annex hereto, that the vessel was abandoned owing to a serious influx of water, in all probability through some defect in her plating, which flooded the engine room and stokehold, and rendered her unmanageable, and in a sinking condition. The Court finds that the vessel was not in a seaworthy condition when she left New York, that she was not prematurely abandoned, and that the master, Andrew McGregor, and the chief engineer, George Dunbar Falconer, were not in default, but committed an error of judgment in neglecting to close the tunnel door.

Dated this 25th day of February, 1913.

FREDERICK PAGE, }
D. T. HOBKIRK, } Judges.

We concur in the above Report.

C. K. McINTOSH, }
H. E. BATT, } Assessors.

W. H. BRODRICK,
Engineer Assessor.

Annex to the Report.

This was an Inquiry into the circumstances attending the abandonment of the British steamship "River Meander," of London, and was held at the Moot Hall, Newcastle-upon-Tyne, on the 18th, 19th, 20th, 21st, 22nd, 24th and 25th days of February, 1913, before Frederick Page, M.A., M.D., D.C.L., and David Thomas Hobkirk, Esquires, assisted by Commander C. K. McIntosh, R.N.R., and Captain H. E. Batt (Nautical Assessors), and Mr. W. H. Brodrick, M.I.Mech.E. (Engineer Assessor). Mr. Burton appeared for the Board of Trade, the Hon. H. Gorell-Barnes, barrister-at-law, represented the owners, Mr. Lewis Noad, barrister-at-law, the underwriters of the cargo, Mr. G. S. Lawson, the master, while the chief engineer appeared in person.

The "River Meander," Official Number 124359, was a steel screw steamship, built at Greenock, in the year 1906, by Scott's Shipbuilding and Engineering Company, Limited, and was of the following dimensions:—Length, 360.1 feet, breadth, 50.2 feet, and

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depth in hold 24.8 feet. She was schooner rigged, and fitted with triple-expansion engines of 370 N.H.P., and 2,000 I.H.P., designed to give the vessel a speed of 11 knots per hour, constructed by Scott's Shipbuilding and Engineering Company, Limited, in the year 1906, and was of 3,887.51 gross, and 2,500.74 net, registered tonnage, and was owned by "The America-Levant Line, Limited," of 7, Great St. Helen's, in the City of London, Mr. J. Wyllie Thompson, of the same address, being appointed managing owner.

The "River Meander" was a cargo steamer, and, according to the evidence and plans produced, her construction was as follows:—

She was of the spar-deck type and was originally designed as a one-deck vessel. However, before the construction was far advanced, it was decided to have a main deck, which was laid about 8 feet below the spar deck, and carried fore-and-aft the vessel. She had a raised forecastle for the accommodation of the crew, and a long bridge amidships which could be utilized for cargo or bunker coals as required, but there were no cargo or bunker doors.

The donkey-boiler was placed in a space abaft the main funnel on the spar deck. The saloon was on the bridge deck at the forward end, and above the saloon there was a chart house, and above this again, the navigating bridge from which the vessel was steered.

At the after-part of the bridge deck and alongside of the engine-room casing, was the accommodation for the officers and engineers. There was a poop aft, above the spar deck, which was used for cargo when required. There was also a large store room under the poop deck at the after end used for storing the ship's provisions. It may be mentioned in passing this store room was stated to have been flooded prior to the abandonment of the vessel to a depth of several feet owing to the washing away of the ventilator, and that the water was not got out as there were no means of pumping it, and that the bulkheads were watertight.

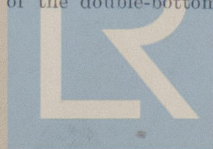
The 'tween decks fore-and-aft the vessel, on both sides, were fitted with 9-inch port lights, which were all said to be fitted with the usual cast-iron blanks on the inside of the vessel and secured in position with screws having square nuts for this purpose.

There were six watertight bulkheads, all carried up to the spar deck. No. 1 bulkhead separated the fore-peak tank from No. 1 hold, No. 2 bulkhead separating No. 1 hold from No. 2 hold.

There was also a division bulkhead at the after part of No. 2 hold which was only carried up to the main deck, the space abaft this bulkhead being used, when required, as a cross-bunker. The No. 3 bulkhead separated No. 2 hold and the cross bunker from the stokehold, and was fitted with two watertight doors for trimming the coals out of the cross-bunker into the stokehold. No. 4 bulkhead was at the after end of the engine room, and separated No. 3 hold or deep tank from the engine room. There was one watertight door on this bulkhead at the entrance of the shaft tunnel. The top of this deep tank, in the 'tween decks was said to be fitted with the necessary scuppers leading through No. 4 bulkhead into the engine room. No. 5 bulkhead separated No. 3 from No. 4 hold, and No. 6 bulkhead was between No. 4 hold and the after-peak tank. It appeared from the evidence that there were no sluice valves or cocks on any of the bulkheads.

There were five cargo hatchways on the spar deck, all the coamings being about 3 feet 6 inches above the deck, fitted with wooden hatches and tarpaulins.

The vessel had a cellular double bottom fore-and-aft, with the exception of ten frame spaces under the main boilers. The ballast tanks were divided into five compartments; No. 1 tank in way of No. 1 hold, and extending three frame spaces into No. 2 hold, No. 2 tank in way of No. 2 hold, and extending for two frame spaces into the fore part of the stokehold, No. 3 tank under the main engines, and said to have been divided into two compartments by a longitudinal bulkhead for trimming purposes. No. 4 tank extended one frame space into the engine room, also in way of the deep tank and No. 3 hold, No. 5 tank was in way of No. 4 hold, and extended three spaces into No. 3 hold. There were no wells or breaks between any of the double-bottom tanks except at the



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after end of No. 5 tank in the tunnel recess, and, as already described, under the boiler space. There was an after peak tank; the fore peak was not used for water ballast, but was fitted with a 4-inch hand pump worked from the spar deck for pumping out any water that might accumulate in this space. The capacities of the ballast tanks were: No. 1, 182 tons; No. 2, 324 tons; No. 3, 74 tons; No. 4, 207 tons; No. 5, 135 tons, and the after peak 40 tons, making a total, including 699 tons in deep tank, of 1,661 tons. With regard to the double-bottom tanks it should be noted that they did not extend to the ship's side, there being a space of about 4 feet between the side and the tank margin plate at the level of the top of the tanks, tapering off to a few inches at the bottom, with a depth of about 3 feet before the water would flow over the tank tops. The bottom of the tank-pockets or bilges was about 6 inches above the bottom of the keel-plate. The vessel having very little rise of floor, was fitted with bilge keels about 130 feet long, each extending about 12 inches from the shell plating. The tee-bar to which the bulb was attached was about 12 inches above the tank margin bar and in way of the tank pockets or bilges, so that, if any damage sufficient to cause leakage happened to the shell-bar, the water would leak into the holds and not into the tanks. The vessel was fitted with two 16-inch ventilators to No. 1 'tween decks, and one 16-inch ventilator to No. 2 hold. There were also two hollow derrick posts at the after end of No. 2 hold, which served as ventilators, and there were two 16-inch ventilators into the 'tween decks of No. 3 hold, one at the fore end on the port side close to the after end of the bridge bulkhead, and the other at the fore end of the hold on the starboard side. There was one 12-inch ventilator into the deep tank placed close to the after end of the bridge, and a little on the port side of the centre line of the vessel, and another 16-inch ventilator at the fore end of No. 4 hold on the port side leading into the 'tween decks, the after part of this hold being ventilated by a hollow derrick passing through the poop. From all these ventilators, with the exception of the one to the deep tank, were led smaller ventilators for ventilating the lower holds. At the fore end of No. 1 hold there was a 2½-inch air-pipe leading into No. 1 ballast tank which had a swan neck at the top. There were also two air pipes at the after end of this tank, and two at the fore end of No. 2 tank. These led up the ship's side, being secured at the upper part to the bulwark plating, the top opening being covered with a perforated casing to prevent dirt getting into the air pipes and being about 2 feet above the spar deck. The Nos. 3, 4, and 5 tanks were provided with air-pipes similar to Nos. 1 and 2 tanks.

All the ballast tanks and holds had two sounding pipes to each compartment, being placed about the centre line of the vessel, the openings at the top being fitted with the usual screw brass deck caps. There were also three short sounding pipes in the tunnel for Nos. 3, 4, and 5 ballast tanks, also fitted with screw caps.

There were two 3½-inch bilge suction pipes at the after end of each hold, one at each side, fitted with the usual strums, one 4-inch suction pipe in the after end of No. 1 tank, two 6-inch suctions at after end of No. 2 tank, two 3-inch suctions at the after end of No. 3 tank, one 5-inch centre suction, and two 2½-inch wing suctions in No. 4 tank, and one 4-inch suction at the after end of No. 5 tank.

There was a 5½-inch Downton hand pump on the port side of the engine room fixed on a level with the main deck connected to draw from all the bilges, and said to be capable of lifting about 20 tons per hour, maximum.

There were two bilge pumps driven from the main engines, which were connected to draw from all the bilge suctions and said to be capable of lifting about 40 tons per hour, each, when the engines were running at their maximum speed, or about 20 tons each at half speed. The circulating pump, which was also driven from the main engines, would, if in proper working order, be capable of lifting 500 tons of water per hour when the engines were working at half speed, or 1,000 tons per hour at full speed, through the bilge injection valve which was 6 inches in diameter, and placed in a good position in the port bilge.

There was one duplex ballast donkey pump capable of lifting about 300 tons per hour, which could be connected to all the ballast tanks and bilge suctions, and also one general donkey pump of the duplex type capable of lifting about 75 tons per hour, and said to pump from all compartments. There were two Weir's donkey pumps, both of the duplex type, capable of lifting about 75 tons each. One of these pumps, however, was only able to draw from the ballast tanks, feed heater, hotwell, and the sea, and discharge into the main boilers; the other could draw from the ballast tanks, discharge into the boilers, or through the condenser, or overboard.

The pumping and draining plan of the vessel shows the port bilge suction pipe leading to No. 1 hold as being level with, or a little above, the ballast tank top. However, it was stated in evidence by the third engineer that this pipe, also the ballast suction pipe from No. 1 tank, passed through the lightening holes in the tank side bracket plates, in which case the pipes would be about 12 inches lower than shown in the plan. If the position of the pipes was as stated, then, by disconnecting the lower end of the lead pipe (bend), the water could have flowed into the bilge under the cross bunker, and so have kept the water below the No. 1 tank top unless the leakage had increased too fast for the area of the suction pipe to cope with. This, therefore, disposes of the third engineer's statement.

The vessel had two steel boilers fired in a separate stokehold at the forward end, and three furnaces in each boiler, the grate-bars of the centre furnace being about 2 feet 6 inches above the stokehold plates, and the wing furnace bars about 4 feet, so that there must have been at least 3 feet of water above the stokehold plates before the port boiler fires were put out.

The vessel had two lifeboats on skids, one on each side of the engine-room skylights; there was also a dinghy on the starboard side, and a gig on the port side, forward of the lifeboats, all under davits. There was a sufficient number of life jackets on board, one for each person, these being stowed in two chests on the upper bridge.

The vessel had six lifebuoys, also all the necessary rockets and other signals and equipments required by the Board of Trade.

The vessel was supplied with patent logs, deep-sea and hand leads. There were two compasses, one on the flying bridge and one on the poop deck aft, which were adjusted by Messrs. Hudson and Jackson, of Sunderland, off the Tyne, on the 30th August, 1912.

The vessel, originally named the "Bardistan," was built for the Anglo-American Steamship Company (1896), Limited, for the Indian trade, and was sold by them to the present owners in May last, for the sum of £39,400, it being the intention of the new owners to run the vessel between the United States and the Mediterranean. At the time of the purchase the vessel was abroad, returning to the United Kingdom on the 21st August last, when, in pursuance of the purchase agreement, she was docked in the Tyne at Smith's Dock. It was provided by the agreement that the engines and boilers should be opened out by the vendors to enable the purchasers' surveyor to make a proper inspection thereof, any requirements that might be deemed necessary by Lloyd's classification surveyor to enable the vessel to retain her class, to be paid for by the vendors. The vessel was to be placed in dry dock to enable the purchasers to inspect the bottom and tail-end shaft, and if either were found to be broken or damaged, the vendors were to make the same good, at their expense, to the satisfaction of Lloyd's surveyor, and bear the cost of dry docking and drawing and replacing the tail-end shaft, otherwise such cost were to be borne by the purchasers.

When in Smith's Dock the vessel was examined on behalf of the owners by Mr. John Catto, marine superintendent, and, in particular, by Mr. H. M. Rogers, marine surveyor. Mr. Rogers' examination was made on the 20th August, and he reported that the vessel was in exceptionally good order for her age, and had no serious defect of any description with the exception of the furnaces, which were distorted, but he was of opinion that they could be safely worked for an indefinite period provided they were carefully watched and gauged at frequent intervals. As regards the bottom, Mr. Rogers reported that "two or three slight indentations were notice-

able, the worst being on the port side, along the seam between No. 2 plate in B strake and No. 3 plate in C strake. This, however, was not serious, and the rivets, when tested with a hammer, were found to be sound. Subsequently, however, when examining the interior of No. 1 ballast tank, I found the cement started and broken through three frame spaces in way of this indentation."

It is important to bear this in mind in view of the fact that all the subsequent trouble occurred on the port side, and apparently in the neighbourhood, more or less, of this spot. It should be noted, too, that Mr. Rogers' examination was made after the hull had been painted. Under these circumstances something may have escaped attention. However this may be, two spaces in No. 1 tank, port side, were cemented at a cost of £1, various other necessary repairs were effected, and the vessel retained her class, Lloyd's 100 A1.

The "River Meander" sailed from the Tyne for Porto Ferrara, with a cargo of coal on the 30th August, 1912, under the command of Mr. Andrew McGregor, whose certificate as master was numbered 07181. The vessel was manned by a crew of 31 hands all told, 18 of whom were foreigners of various nationalities, mostly Greeks. Of those who gave evidence in Court one, Demetri Glicas, was absolutely ignorant of English, and the services of an interpreter were necessary.

It was evident to the Court that others of the crew were scarcely able to understand orders given in English, and were equally unable to understand each other. Mr. John Catto, the superintendent of the vessel, stated in evidence that these Greek seamen were shipped because the vessel was intended to trade with the Levant, but the Court, while able to appreciate his explanation, considers that the language test should be rigorously enforced.

The vessel proceeded on her voyage down Channel and across the Bay, and nothing unusual occurred until about 10 p.m. of the 3rd September, when she had reached a point about 60 miles distant from Ferrol. At this time the high-pressure piston valve-chest cover cracked in three places, and the vessel was steered for Ferrol, arriving there during the forenoon of the 4th September. Here repairs were effected, and the vessel sailed again on the 6th for her destination, which was reached on the 14th September. After discharging her cargo, the vessel proceeded to Machri, where a quantity of chrome ore was taken in for America, and from there she sailed for Smyrna, at which port she completed her cargo, which consisted of tobacco, licorice root, and general goods. Her draught then was 22 feet 9 inches forward, and 22 feet 11 inches aft, which put her 2 inches below her summer load-line.

On the 10th October, the "River Meander" left Smyrna bound for New York, calling at Algiers for coal on the 16th, and resuming her voyage the same day, passing Gibraltar two days later.

From this time until the 24th, the vessel met with fresh westerly winds and variable weather, but that the weather was moderate is proved by the fairly steady rate of progress made.

On the 25th October, the westerly wind increased, though, judging from the speed made good against it, the extreme weather conditions described in the mate's log could scarcely have existed.

On this day, however, water in an unusual quantity (9 inches), was reported in the port fore bilge. On the following day this had increased to 15 inches, and on the 28th, 18 inches were found.

At 6 a.m. on the 29th, there being still 18 inches in the port fore bilge, the pump failed to draw, and it became evident that some defect or obstruction existed in the pipe leading to the bilge. At 6 p.m. there were 20 inches of water in this bilge, and on the 30th October, 21 inches.

The water had increased to 3 feet by the 2nd November, when, owing to the cross bunker being worked out, the limber boards were lifted, and it was found that the bilge suction pipe was broken at a lead bend. The defect was temporarily made good, thus again bringing the pumps into action.

At 6.30 a.m. of the 3rd November, 4 feet 6 inches of water were found in the port deep tank, No. 3 hold, and, at the same time, there were 11 inches in the port fore bilge. This water the pumps got out by 9 a.m., but at 6 p.m. there were still

9½ inches of water in the deep tank and 13 inches in the port fore bilge.

The presence of water in the No. 3 deep tank was subsequently attributed by the master and second officer to water having gone down the two forward ventilators (port side), leading into the No. 3 'tween deck and deep tank during the bad weather on this passage because a ventilator cover had, they said, been washed off on the 28th October. As these ventilators were trimmed back-to-wind-and-sea, and were also, from their position, protected by the bridge structure, the Court was unable to accept this theory. The No. 3 deep tank, port side, and the No. 1 bilge, port side, continued to show water daily until, and after, the vessel arrived at New York on the 5th November, and, in the course of the discharge of the cargo there, it was said that there was extensive damage to cargo in the No. 3 'tween deck, the bottom tier of cases being wet and stained with sea water.

In the deep tank, and directly under the hatch, the cargo was said to be damaged right down to the bottom owing to the water in the 'tween deck overflowing the 9-inch high coamings.

This was also the case in a lesser degree under the ventilator leading into the deep tank, and was due possibly to the water finding its way over the flange which connected the ventilator to the 'tween deck.

A plan of this hold, drawn by the second officer, and showing the damage in the 'tween deck and deep tank, was put in during the hearing. It purported to show that all the water gained access to these holds only through the ventilators, a conclusion, as before stated, the Court was unable to accept. The plan, however, was of some assistance, inasmuch as it showed graphically how much water had, at one time or another, got below in this part of the vessel.

After discharging a portion of her cargo, which was completed on the 9th November, when there were 10½ inches in the fore port bilge, and 3 inches in the deep tank, the vessel left New York on the 10th November, for Philadelphia, where she arrived at noon on the following day.

She came up the river on a flood tide, and while turning round, with the assistance of two tugs, into her berth at Camden, the tide set her on to a bank, which she took with her port bilge. No member of her crew felt her touch.

The bank was said to consist of soft mud from which, beyond plugging up the main injection inlet, no harm is definitely known to have resulted. Though the Court does not suggest that any damage did result, it cannot overlook the possibility of this grounding having aggravated any defect that may have existed in the shell of the vessel on the port side.

On the 14th November, the vessel left Camden, and was towed to Girard Point, where the last of her outward cargo was discharged.

The log shows plainly that, during the whole of the passage across the Atlantic, from the time the weather became stormy until arrival at New York, the vessel made a considerable amount of water, and, as there was no damage sustained by either hatches or ventilators, it is evident that the leak must have been through the skin of the ship, unless the water came through some of the pipes, which is improbable.

The discharge of the cargo having been completed at Girard Point about 3 p.m. on the 17th November, the vessel left for New York at 4 p.m. on that day, but, as was stated, the pilot refused to proceed at night, and they accordingly anchored in the Delaware river until 6 a.m. of the 18th, when the vessel got under weigh and arrived at her loading berth, New York, at 9 a.m. of the 19th.

It appears from the evidence that, on leaving Girard Point, it was found that the water was not passing through the main injection valve, and the donkey pump was put on the condenser. During the time the vessel was anchored in the Delaware river an examination was made, and it was found that the main injection inlet was choked. On getting under weigh on the morning of the 18th a rush of muddy water was observed coming from the main discharge, and the circulating pump then became operative. It was concluded that the choking of the inlet was due to mud getting into it at the time the vessel touched the mud bank at Camden.

Lloyd's surveyor was called in on arrival at New York to examine the vessel and to determine the cause of the influx of water into the No. 3 hold or deep tank, on the passage from Smyrna to New York.

There appears to have been a belief that this water may have come through the ice-box and so into No. 3 'tween decks, and, with this in view, the after end of the side bunker was cleared of coals, a "wall" built there and the space flooded with water. The ice-box was also stripped and filled with water. No leakage was found, and the surveyors were said to have been satisfied that the leakage was not from the ice-box or side bunkers. The fore bilges were also examined by the master, engineer and carpenter with a view to ascertaining where the water came in on the passage from Smyrna to New York. The master said he "found no signs of leakage other than the appearance of a small leak in one of the butts, which did not amount to much." The chief engineer said in evidence that he attached importance to the water found in No. 1 bilge, and expressed the opinion that this water came through the plating of the vessel.

Nothing more was done to ascertain the cause of the influx of water, and it is evident that the cause was never ascertained, otherwise steps would presumably have been taken to obviate any future leakage. But no such steps were taken. With regard to the water found in No. 3 lower hold—deep-tank, and in No. 3 'tween decks—in the former of which 4 feet 6 inches was found on the passage from Smyrna to New York—attempts were made to account for this water, as already stated, by assuming that it found its way into the 'tween decks through two ventilators and thence into the No. 3 hold by way of the hatch. But in letters to the owners sent from New York shortly after the vessel's arrival there, the master says "I cannot account for this water . . . We finished discharging No. 3 'tween decks this afternoon, but all the ports were tight, and beyond a sign of leaking in the starboard forward corner, there is nothing to show where the water came from. She had the ventilator cover washed off and the bunker tarpaulin split during the heavy weather, but Messrs. Norton & Son" (the owners' agents in New York) "advise me to say and do nothing until we come back."

It will be noted that no mention is here made of water found on the port side of No. 3 'tween decks, whereas, at the Inquiry, the master stated that he considered the water found in No. 3 hold went down the two ventilators on the port side into the 'tween decks and thence had washed up over the coamings of the hatch—which were about 9 inches in height—and so into No. 3 hold. He also stated in evidence that, on discharge of the cargo from No. 3 'tween decks, about 2 feet of water was found on the port side, the scuppers leading from the 'tween decks to the engine room being found choked. This statement does not appear to coincide with the passage of the master's letter above quoted.

Once the theory had been adopted that the water in the No. 3 hold came from the 'tween decks, no further effort appears to have been made to verify the theory adopted, or to attempt to find some other cause. A copy of a certificate issued by Lloyds' surveyor dated 25th November, 1912, was produced in which it is stated that all repairs recommended by the surveyor (which would include necessary repairs to No. 1 port bilge suction pipe) had been completed to his satisfaction, that the vessel was fit to carry dry and perishable cargoes, and that he—the surveyor—had recommended that she be continued as classed, 100 A1. Spar deck, without fresh record of survey.

The loading began at New York on the 19th November and was completed on the morning of 26th. Her cargo consisted of 1,926 tons of wheat in bulk, 450 bales of cotton, and general cargo. The total weight of the cargo was said to have been roughly about 5,000 tons. She had 1,267 tons of bunker coals when she left New York, and, in addition, there were 74 tons of fresh water in the engine room ballast tank, the drinking water and stores would amount to about 35 tons, making a total weight of 6,376 tons. With this weight the mean draft in sea water would be, according to the loading scale, 22 feet 7½ inches. The vessel's actual mean draft in sea water at the time she left New York was said to have been 22 feet 1 inch, and the Court accepts this as correct. The weight of the cargo on board must therefore have been about 4,770 tons, that is, 230 tons less than the rough estimate of 5,000 tons.

Her clear side when leaving New York was said to be 5 feet 9 inches.

The cargo was properly stowed and secured from shifting, the vessel had a very slight list to port, so slight as to be of no importance. She left New York at 6.30 p.m., 26th November last. There is no evidence as to the state of the weather at that time, but it is admitted that all went well up to noon of 28th November when bad weather was encountered, with a strong wind from the eastward. At 1.30 p.m. on that day the ventilators were unshipped and the covers put on. At 2 p.m. the vessel was plunging heavily into a head sea, and the engines were reduced to "half speed." At 3.10 p.m. the wind shifted round by the southward to south-west and moderated somewhat, and the engines were put at full speed again. Shortly after the wind increased, and, at 6.30 p.m., is described as a hurricane with a very heavy sea. About this time a heavy sea broke on board and damaged the rails on the starboard side of the bridge deck and some wood awning-gear.

At 8 p.m. the vessel was put head-to-wind, and the engines eased down so as just to keep steerage way.

At 1 a.m., 29th, the weather had become worse, "an extra heavy sea" broke on board, damaging some bridge wooden awning-gear, carrying away some awning-spars on the fore-castle deck and a ventilator in the carpenter's room. These were comparatively minor damages and had no apparent effect on the structure of the vessel.

At 3 a.m. the wind flew to the north-west in a heavy hail-squall which lasted about an hour, and then moderated a little.

At 5 a.m. the vessel was put before the wind and sea (about S.E. to S.E. by S.), and so continued until about 8 a.m., oil being poured over each bow. During the night, at what time is uncertain, a ventilator leading into a store room was washed away, and water, to the extent of about 3 feet, was found in this space in the morning. This store room was situated at the after end of the poop, and there was a water-tight bulkhead between the store room and the fore end of the poop in which cargo was stowed. The water was confined to the store room and did not leak from there into any other compartment. At 8.30 a.m. the chief engineer reported to the master that there was an unusual quantity of water in the engine room. The speed of the engines was reduced, the master went to the engine room with the chief engineer, and, together, they made an examination with a view to determine the cause of the influx of water. The fourth engineer also examined around the engine room and stokehole and in the bilges, but it was never ascertained where the water came into the vessel. The third engineer said he believed it came in through the port bunker, but he gave no reason for his belief. The fourth engineer said he saw water in the port bilge but could not see where it came from.

He examined round the main injection and saw no water coming in there. It is significant that the fourth engineer saw no water coming in near the main injection, as his examination was made very shortly after the water was first noticed, and before it had risen much above normal.

Immediately the unusual amount of water was found in the engine room, the main-engine bilge pumps being then at work, the engineers put on the ballast donkey pump, and then the general donkey pump on to the bilges.

At about 11.30 a.m. attempts were made to put on the bilge injection, but they were not successful.

It is a most unfortunate circumstance that the bilge injection was not got to work, as, judging from the time it took for the vessel to founder, it would appear that the circulating pump would have been more than sufficient to deal with the water coming into the machinery space. The first engineer stated that he heard the bilge-injection valve working ("clicking" to use his own words), but the Court is of the opinion that he was mistaken, that the valve was fast and never did work, or that the bilge-injection pipe was choked, and the "clicking" heard was the valve or valves of some of the other pumps that were working at the time.

The Court is strongly of the opinion that the bilge-injection valves of steamships should be frequently examined, the valves taken out and cleaned, to ascertain whether the bilge-injection pipe and strum box are clear. The superintendent engineer stated that he saw the bilge-injection valve removed while the vessel was in dry dock at North Shields. It is quite

possible for this valve to have got set fast between the time it was examined in dry dock and the time the vessel was lost, especially after the Camden incident, where the main-injection valve became choked with mud, some of which may have lodged on the top of the valve.

At about 4 p.m., the water still gaining, the lid of the engine-room ballast tank was taken off to allow the water from the engine room to flow into the tank where it could be dealt with by a Weir pump which was put on. In spite of the pumps the water still continued to rise steadily. About 11 a.m. the carpenter sounded the cargo holds and tanks and found one to two feet of water in Nos. 4 and 5 ballast tanks with all other compartments—except engine-room ballast tank—dry. There is no evidence as to when these compartments had been previously sounded, so that it is uncertain when water first got into the Nos. 4 and 5 tanks. No soundings were taken after about 11 a.m., probably the amount of water washing over the decks made further soundings difficult and dangerous, if not impossible. The water gradually rose against the action of the pumps, and, about 4 p.m., it had risen to the height of the tunnel door which was not closed. The chief engineer gave as an explanation that he wanted some of the water to run into the tunnel from the engine room so that the water might be dealt with from the tunnel. This appears to the Court an insufficient reason, for it was very important that it should have been closed immediately it was realized that the water was gaining on the pumps in the engine room; because, when the water rose above the short sounding pipes in the tunnel (if the caps were not on the pipes), it was only a question of time before the Nos. 3, 4, and 5 ballast tanks would be filled through these pipes, the tops of which were about four feet above the tunnel floor.

In any case, the engineer did not close the door when, later on, the pumps stopped for want of steam, and when the water in the tunnel could not be dealt with and, later still, when the crew left the "River Meander" for the "Ikbal," it must have been in the mind of the master that there was some hope of the vessel being towed by the "Ikbal," and for that reason the "Ikbal" must have remained by the "River Meander" until the following morning.

Under these circumstances the Court fails to see why master did not give orders for the tunnel door to be closed or why the chief engineer did not close it of his own initiative.

At about 5.30 p.m. the vessel was headed for Halifax, the nearest port. At about 7 p.m. the Downton pump was put on, the port fires were drowned out, and, shortly after, the engines were stopped, so that all available steam might be used on the pumps.

The electric light went out between 8 and 9 p.m., and it was assumed as the cause of this that the water had risen to the dynamo, and about this time the steam pumps ceased working, due to lack of steam or condensation in the steam pipes, both pipes and pumps being then under water. According to the copy of the "Ikbal's" log, distress signals were seen from a vessel which proved to be the "River Meander" at 6.40 p.m., at 6.55 the "Ikbal" had closed up and spoken the "River Meander," who signalled "We are sinking, will you stand by me until morning, the ship leaking in engine room and stokehold, water gaining one foot per hour, all fires out in boilers, store rooms flooded." The "Ikbal" replied that she would do as requested. At 10 p.m. the "Ikbal" received a Morse signal from "River Meander" as follows:—"I am abandoning, all hands coming off in our boat."

At 11 p.m. all the crew had arrived on board the "Ikbal." The position of the vessel when the crew left her, and the weather conditions, are set out in reply to question No. 9. It was decided that the "Ikbal" should remain near the "River Meander" until the following morning in the hope that towage operations would be possible. During the night of 29th/30th, the wind had freshened, and, at 8 a.m., there was a moderate gale from the westward with heavy squalls and westerly sea. At 8.45 a.m. the "River Meander" was still afloat, but she was much deeper in the water than at the time the crew left. The after deck was completely awash, and heavy seas were sweeping over the bridge and poop decks. It was considered impossible to board the vessel, and she was thought to be settling down fast. The master

of the "River Meander" said he requested the master of the "Ikbal" to remain a little longer, but, having regard to the weather, a falling barometer, and the condition of the vessel, he decided it was useless to remain longer. The "Ikbal" was then put on full speed for Halifax for the purpose of landing the "River Meander's" crew there, as there was said not to be sufficient food on board the "Ikbal" to last the vessel to Liverpool, to which port she was bound. At 11 a.m., 2nd December, the 31 hands of the "River Meander" were landed in safety at Halifax.

No lives were lost, but the master and officers appear to have saved none of their effects. No attempt was made to save the ship's papers, though there was ample time to have done so, and it was said that the ship's log had not been entered up since leaving New York.

To sum up, the main points for the consideration of the Court were (1) What was the cause of the influx of water into the vessel on the passage to and from New York, and (2) Why, on failure to definitely ascertain the cause of the influx on the passage out, was not the vessel dry docked at New York?

As to the first point, there was nothing in the state of the weather to suggest that any damage was done to the hull, and the ventilator theory as to the water on the passage out was, in the opinion of the Court, impossible, and indeed appears only to have been an after-thought on the part of the master and officers, while the engineers deny that any negligence on their part as regards the sea connections contributed to the disaster. The master, chief and third engineers stated they carefully examined all the sea cocks, valves, &c. when it was first discovered that the water was increasing, and found them all in order. The Court had not before it any evidence as to the vessel's history prior to the purchase by her present owners, and, notwithstanding the evidence given as to the inspection made prior to her leaving the Tyne, and at New York, came to the conclusion that there must have been some defect in the plating of the vessel, and it was not clear that Lloyd's surveyor at New York had specifically brought to his notice all the facts of the case prior to his survey. The Court considers that as the cause of the leakage was not discovered at New York, the vessel should have been placed in dry dock before leaving that port, and is satisfied that when she left New York, the "River Meander" was not in a seaworthy condition, for, on no other hypothesis, could the disaster be satisfactorily explained. It was suggested that the vessel might have struck some submerged object after leaving New York, but there was nothing in the evidence to support that theory, which was, in the opinion of the Court, quite untenable.

At the conclusion of the evidence, the following questions were submitted on behalf of the Board of Trade; Mr. Noad, Mr. Gorell-Barnes, Mr. Lawson, and the chief engineer addressed the Court, and Mr. Burton replied:—

1. What was the cost of the vessel to her owners? What was her value when she sailed on her last voyage? What insurances were effected upon, and in connection with the vessel?
2. Did the steamship "River Meander" sustain damage on the passage from Smyrna to New York in October and November last? If so, what was the cause and extent of such damage, and was it sufficiently repaired before leaving New York on 26th November, 1912?
3. Was the steamship "River Meander" at any time aground, and if so, when? Did she sustain damage in consequence, and, if so, where?
4. When the steamship "River Meander" left New York on 26th November, 1912—
 - (a) Was she in good and seaworthy condition as regards hull and equipments?
 - (b) Were her pumps sufficient and in good condition and working order?
 - (c) Was her cargo properly stowed, trimmed, and secured from shifting?
 - (d) Had the vessel the required freeboard and was she upright?
5. What was the cause of the damage sustained by the vessel on the 28th and 29th November, 1912? Was such damage serious?

6. When did the vessel commence to make an unusual quantity of water? What was the cause of it, and were prompt and sufficient efforts made by the master and chief engineer to ascertain the cause of the influx to keep the water under and preserve the vessel?

7. Were the pumps in good working order at 8 a.m. on 29th November, 1912, and did they, or any of them, at any subsequent time, break down or cease working? If so, at what time or times?

8. When did the vessel take a heavy list to port? What was the cause of it? Was every reasonable effort made to get her upright?

9. When and where was the vessel abandoned, and what was her condition, and the condition of the weather and sea at the time?

10. Was the vessel prematurely abandoned?

11. Was the vessel navigated with proper and seamanlike care?

12. Was serious damage to and/or the abandonment of the steamship "River Meander" caused by the wrongful act or default of the master and chief engineer, or of either of them?

To which the Court replied as follows:—

1. The cost of the vessel to her owners, who purchased her in May, 1912, was £39,400.

The owners considered her value, when she sailed on her last voyage, was from £42,000 to £45,000.

Having regard to the appreciation in the value of steamers, the Court is of opinion that this sum may be taken as approximately correct.

The insurances stated to have been effected upon, and in connection with, the vessel, were as follows:—

	£
On hull and machinery ...	34,000
On freight ...	2,000
On disbursements ...	7,000
On premiums reducing ...	2,320
Total ...	45,320

2. There is no direct evidence that the "River Meander" sustained damage on the passage from Smyrna to New York in October and November last.

It was however proved and admitted—

- (1) That on this passage the vessel made water in No. 1 port bilge.
- (2) That she also made water in No. 3 hold or deep tank (port side).
- (3) That water was found in the 'tween decks on the port side when the cargo was discharged at New York.

As regards the first point, the master suggested to the Court that the water was due to "sweating," but he eventually abandoned that theory, while the chief engineer expressed the opinion that it came through the plating of the ship. The Court is of opinion that this leakage was caused either by a defect in the shell of the vessel, or by water passing through leaky valves, and so, into the bilge.

There is no direct evidence that any defect did, in fact, exist in the shell of the vessel, or in the valves.

As to the water found in the deep tank, there is no positive evidence to show how it occurred. It was suggested that it came through the ventilators into No. 3 'tween decks, and from there flowed over the hatch into the lower hold. The Court is unable to accept this theory, and considers that it found its way into this hold either through the shell of the vessel or through suction or other pipes from the engine room, though here again there is no direct evidence on the point.

At to the water in the 'tween decks it was also suggested that this came through the ventilators. In the opinion of the Court, this may have been the case, but not to any appreciable extent.

The broad fact remains that the cause of the influx of water into the vessel was not ascertained, and consequently no repairs of any kind, except some necessary repairs to the port fore bilge and suction pipe, were effected before leaving New York on the 26th November, 1912.

Under the circumstances, the Court is of opinion that the vessel should have been put into dry dock

at New York for the purpose of definitely ascertaining what was the cause of her making water on the passage out.

3. When the "River Meander" was turning into her berth at Camden, Delaware River, on the 11th November last, the flood tide set her down with her port bilge on to a bank which was said to be of soft mud. The contact was slight, and, beyond choking the main injection-valve inlet with mud, there were no indications, at the time, of the vessel having been on the ground, or of having sustained any damage.

4. When the "River Meander" left New York on the 26th November, 1912—

- (a) She was, in the opinion of the Court, not in a good and seaworthy condition as regard the hull, but her equipments were satisfactory.
- (b) Her pumps were sufficient, and in good condition and working order, except that the bilge-injection valve, which is connected to the circulating pump, proved to be inoperative when the engineers tried to make the connection, on the other pumps being overpowered.
- (c) Her cargo was properly stowed, trimmed, and secured from shifting.
- (d) The vessel had the required freeboard, and she was practically upright, having only a slight list to port.

5. The vessel sustained some small damage about the decks on the 28th November, due to the gale and heavy sea then prevailing.

This was of no importance, as it was all stated to be above the weather deck and did not affect the seaworthiness of the vessel. There was no direct evidence to show what was the cause of the damage which occurred on the 29th November, but the Court is of opinion it was owing to the development of some defect in the skin of the vessel, and was of the most serious nature, resulting in a rapid influx of water in the engine room and stokehold (which the pumps were unable to overcome), and, in a less degree, in Nos. 4 and 5 ballast tanks.

6. The unusual amount of water in the No. 1 port bilge and No. 3 deep tank, which occurred on the passage to New York, has already been dealt with in the answer to question No. 2.

Regarding the serious leak which occurred at or about 8.30 a.m. of the 29th November, as stated in the answer to the last question, the Court was unable to definitely determine the cause. The Court is of opinion that the master and chief engineer used prompt measures to ascertain the cause of the influx of water, to keep it down, and preserve the vessel, but considers that steps might have been taken by the chief engineer to discover whether the bilge-injection pipe was clear by removing the valve-chest cover, and that it was an error of judgment on the part of both the master and the chief engineer in neglecting to close the tunnel door.

In the opinion of the Court, the same cause of the influx of water operated on both the passage to and from New York.

7. At 8 a.m. of the 29th November, 1912, the various pumps were in good working order, and did not, at any subsequent time, break down or cease working, with the exception stated in the answer to question 4 (b).

8. When the vessel left New York she had a very slight list to port, so slight so as to be of no importance. The influx of water, at or about 8.30 a.m. of the 29th November last, increased the list (the wind being on the starboard bow), but it never became heavy.

At about 10 p.m. when the crew left the vessel for the "Ikbal," the list was described as being of 10 to 15 degrees. Every reasonable effort was made to get her upright by use of the pumps.

9. The crew left the "River Meander" for the steamship "Ikbal" between 10 and 11 p.m. of the 29th November last, when in latitude 39°59' N. and longitude 63°40' W.

At this time, there was about 17 feet of water in the engine room and stokehold, and an unknown quantity in Nos. 4 and 5 ballast tanks which they were unable to sound after 11 a.m. of that day, when,

between one and two feet was found in them. At the time the crew left the vessel, the weather was clear, a fresh wind from the north-west with a rough confused swell, and a comparatively smooth sea.

The "Ikbal" stood by until 8.45 a.m. of the 30th November, when it was observed that the "River Meander" was deeper in the water, her after-deck being completely awash, heavy seas making a clean sweep over the poop and bridge decks.

It was decided that towage was impossible, as the vessel was apparently settling down fast, so the "Ikbal" proceeded to Halifax at "full speed."

10. The vessel was not prematurely abandoned.

11. The vessel was navigated with proper and seamanlike care.

12. The serious damage to, and the abandonment of, the vessel were not caused by the wrongful act or default of the master and chief engineer, or of either of them.

FREDERICK PAGE, } Justices.
D. T. HOBKIRK, }

We concur.

C. K. MCINTOSH, } Nautical Assessors.
H. E. BATT, }

W. H. BRODRICK,
Engineer Assessor.

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