

(No. 7817.)

## "MOYALLON" (S.S.).

THE MERCHANT SHIPPING ACT, 1894.

## REPORT OF COURT.

In the matter of a Formal Investigation, held at the Recorder's Courthouse, Chichester Street, Belfast, on the 3rd, 4th, 6th and 11th days of December, 1924, before James Roche, Esquire, R.M., assisted by Captain Henry C. FENWICK, O.B.E., R.D., R.N.R., Younger Brother of Trinity House, Captain William PETERKIN, O.B.E. and Engineer Lieut.-Comdr. William M. FLETCHER, R.D., R.N.R., M.I.Mech.E., M.I.N.A., into the circumstances attending the abandonment and loss of the British steamship "Moyallon" of the port of Belfast, Official Number 142487, on or about the 16th September, 1924, about one mile N.N.W. of Strumble Head, St. George's Channel.

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 loss of the steamship "Moyallon" was primarily due to the vessel, between the hours of six and eight on the morning of the 15th September, 1924, making water through leakage past the base of the mainpiece of the ash ejector, which was not located by those on board before the vessel sank, and which water gradually increased and gained on the pumps. Ultimately the boiler fires were put out and the engine and boiler compartment was filled so that the crew were obliged to abandon her and she sank.

The Court also considers that the primary act of the series of events which resulted in the foundering of the "Moyallon" was the failure of the inexperienced second engineer, Mr. David S. Ryding, to open the shutter of the ash ejector discharge before restarting the apparatus.

The Court does not attach any blame to Mr. Ryding in connection with his omission to open the shutter valve, considering his failure was due to lack of experience.

The Court also considers that the master, chief officer and chief engineer did all that was possible in the circumstances to overcome the leakage and to save the vessel, and that they are not guilty of any wrongful act or default.

Dated this 11th day of December, 1924.

JAMES ROCHE, *Judge*.

We concur in the above Report.

H. C. FENWICK, Captain, R.N.R.	} <i>Assessors.</i>
WM. PETERKIN	
WM. M. FLETCHER	

## ANNEX TO THE REPORT.

This Inquiry was held at the Recorder's Court, Belfast, on the 3rd, 4th, 6th and 11th days of December, 1924. Mr. J. C. Davison, B.L. (instructed by Mr. John R. Moorhead, Chief Crown Solicitor) appeared for the Board of Trade. Mr. E. S. Murphy, K.C. (instructed by Messrs. McKinty and Wright, Solicitors) appeared for the Owners. Mr. J. C. W. Rea, Solicitor, appeared for the Chief Engineer. The Master, First Mate and Second Engineer, who were also parties to the Inquiry, were not represented by Counsel.

The "Moyallon," Official Number 142487, was a well decked steel single screw steamer with a flat plate keel.

The vessel was rigged as a three masted schooner, and the machinery and bunkers were in the after end of the ship. She was built in June, 1919, by J. Fullerton and Company, Paisley, and owned by Messrs. John Kelly, Limited, Belfast, who purchased

her from H.M. Government in February, 1919, for the sum of £27,500, whilst she was in the builders' hands.

The registered manager was Captain William Clint, Belfast.

The vessel passed her No. 1 special survey at Belfast in February, 1924, and was classed in Lloyd's Register as \*100 A1.

The dimensions of the vessel were 142 feet by 25 feet by 11.4 feet; quarter deck 79 feet; bridge 9 feet and forecastle 22 feet. The vessel had one hold for cargo with two hatchways for loading purposes. The forward hatchway was placed in the well deck, and the after hatchway on the raised quarter deck abaft the deck houses. She had three watertight bulkheads and two peak tanks, one at each end. The forward bulkhead, known as the collision bulkhead, separated the fore end of the cargo hold from the fore peak tank. The next bulkhead aft separated the after end of the cargo hold from the bunker space and the after bulkhead separated the engine room from the after peak tank. The forepeak tank held 40 tons and the after peak tank 22 tons, which was used for boiler water. The fore peak tank was filled and emptied through a pipe which led along the keelson amidships, and was protected by a substantial steel covering. A similar pipe led to the after peak tank.

The gross registered tonnage was 432 tons, and the net registered tonnage 170 tons. The moulded depth was 12 feet 7 inches, draught 12 feet 3½ inches and deadweight capacity 535 tons.

The speed of the vessel was about nine knots. She had one high pressure, surface condensing, compound engine which had two cylinders of 18 inches and 38 inches diameter respectively, with a 27 inches stroke, which was built by Messrs. Campbell and Calderwood, Paisley, in 1919. There was one steel single ended boiler with three plain furnaces built by Messrs. Wm. Simons and Company, Renfrew, for a working pressure of 130 lbs. per square inch. The bunker capacity was 46 tons, and one of See's patent ash ejectors manufactured by Meecham's Limited, Scotstoun, Glasgow, was fitted in the stokehold.

There were two reciprocating pumps worked by the main engine which were available for pumping bilge water, viz:—

(1) The main circulating pump which was double acting, 8 inches in diameter with 13½ inches stroke. The suction end of this pump was fitted with a bilge injection valve, which, when opened and the main injection valve closed, would enable this pump to free the engine room bilges of flood water.

(2) A single acting plunger type bilge pump with a plunger 2½ inches diameter with 13½ inches stroke. This pump would draw from the hold, peaks and engine room bilges and deliver overboard.

Additional to the above there were fitted in the engine room one 5 inch by 3 inch by 6 inch vertical duplex general service pump and one 7 inch by 4½ inch by 8 inch ballast pump, both steam driven.

The general service pump was not fitted for pumping bilge water and therefore not readily available for that particular duty. The ballast pump was fitted to pump from the bilges overboard and also from the sea to supply the high pressure nozzle delivery water for actuating the ash ejector, but could not consistently perform both duties at one and the same time. There were also fitted on deck two hand pumps, one of 3 inches diameter, and one of 5 inches diameter. The 3 inch pump was for the fore peak tank and the 5 inch pump for the hold bilges.

She had two wooden lifeboats, which were certified to carry sixteen persons each, eleven lifejackets and four life buoys which were kept in their appropriate places.

The vessel was laid up afloat at Belfast from April 18th, 1924, to September 1st, 1924.

On September 12th at eleven o'clock p.m. she sailed from Dublin in ballast for Carreg-y-llam, Carnarvon.

Bay, where she arrived next day at 7.30 a.m., to load a cargo of road metal for Newhaven, Sussex. At this place there is an outer and an inner loading wharf at which vessels load. Only at certain times of the tide can loading at either of these wharfs be carried on. Great care is necessary in the event of bad weather coming on or with a falling tide to get the vessel off to an anchorage in plenty of time to avoid doing damage to the ship or wharf.

At 7.45 a.m. on September 14th the vessel proceeded to wharf and commenced loading, which was finished at 9.15 a.m. on the 15th September. Every care was taken whilst the vessel was at Carreg-y-llam to prevent damage to the ship or wharf. She was moved out twice from the wharf to an anchorage, and the vessel lay at the wharf altogether for 4½ hours.

The cargo taken on board was said to be 470 tons, and for ship's use there was said to be 22 tons of bunker coal and eleven tons of boiler water on board.

The ship was trimmed upright and her draught was 10 feet 7 inches forward and 14 feet 3 inches aft, which put the vessel 3 feet 8 inches by the stern. This seems to be the customary method of loading this class of vessel which have their machinery, bunkers and fresh water aft.

The loading is done at this place by an elevator on the wharf, and no trimming of the cargo is necessary except taking the extreme top off the heaps and throwing it into the wings. The cargo is kept as high as possible to raise the centre of gravity so as to prevent undue rolling.

At the time of sailing the crew consisted of ten hands all told, and there were no passengers. Robert Hutchison, who holds a Certificate, No. 4571A, as Second Hand in fishing boats, was master. Robert McMurtry, who holds a Certificate of Competency, No. 004473, as Master for Foreign going Steamships, was mate. Walter Carter Middleton, who holds a first-class Engineer's Certificate, No. 49936, was chief engineer. David Stewart Ryding, who holds no certificate, was second engineer. All the above named persons were parties to the Inquiry.

When the vessel left Carreg-y-llam the Insurance covers were: Hull and machinery £9,000 (Hull £6,000, machinery £3,000), Disbursement £900, Freight £450. Total £10,350. Of the £9,000 on hull and machinery, the owners carried 25 per cent., the underwriters' liability being thus reduced to £8,100. The marketable value of the vessel at this time was about £12,500.

As soon as the loading was finished the vessel proceeded on her voyage to Newhaven at 9.15 a.m. on the 15th September, 1924. At 0.15 p.m. Bardsey Island was abeam, strong S.W. wind and heavy sea. At 5.30 p.m. the chief engineer sent word to the master that there was more water in the stokehold than the pumps could deal with. The master immediately went below and saw the amount of water in the stokehold and also helped to put a lashing on the hopper cover. On coming on deck he ordered all available hands to start baling, which was immediately started and carried on until driven from the stokehold by the water. Whilst the baling was going on a suggestion was made that the aperture, if possible, should be blocked up from the outside or covered over with a weighted tarpaulin. This was found to be impracticable on account of the bad weather and the very high sea.

The Court conjectures and believes on the evidence that the casualty which occurred at or about 2.45 a.m. on the 16th September, 1924, is explained or accounted for in the following way. Between the hours of six and eight a.m. on the 15th September, the vessel then lying alongside jetty at Carreg-y-llam, when the second engineer, D. S. Ryding, and fireman W. White were on watch the ash ejector was last used in dumping the ashes after cleaning the three fires of the main boiler of the "Moyallon." The operation was well under weigh when a hitch occurred and the pressure water from the nozzle of the ejector flowed over the edge of the hopper on to the stokehold plat-

form and thence to the bilges. It is the opinion of the Court that some difficulty was experienced in restarting the proper working of the ejector, as a critical pressure of 200 lbs. per square inch has to be obtained on the pressure side of the control cock before the discharging overboard effect of the apparatus can be established. In order to ascertain that the critical 200 lbs. pressure is available, a pressure gauge is fitted, but in this instance it was not in working order and was therefore useless for the purpose for which it was fitted. In these circumstances the second engineer would have nothing to guide him as to the pressure available at the control cock, and many ineffectual attempts were made, each accompanied by much overflow leakage to restart the ejector. At some time the second engineer realised that when he closed the control cock the overflowing from the hopper was not arrested, and he inferred that this leakage was from the discharge valve of the apparatus, and he closed the shutter valve of the discharge chest to stop the leakage from this source.

The vessel was lying alongside a pile jetty around which it is in evidence there was considerable swell at the time, and the vessel being practically loaded, the surging water being only some twenty inches below the lower part of the discharge orifice, would occasionally lop up to and pour down the discharge pipe. The shutter is not a water tight valve when in new condition, its function being merely to arrest ingress of water in some bulk. It would therefore leak when in the closed position and the second engineer dealt with this leakage by closing and screwing down the cover of the hopper.

The probable cause of the failure of the ejector to restart was lack of steam at the ballast pump, to enable the pump to establish the critical water pressure. The second engineer was waiting until more steam pressure was available on the boiler and at the pump. When the requisite pressure was obtained a further attempt was made to get the ash ejector to work. The pressure control cock was opened with the shutter valve closed and the hopper lid screwed down, whereby abnormal stresses were set up in the low pressure parts of the apparatus, resulting in the destruction of the shutter valve, stripping of two of the turnbuckle nuts and bolts and the fracturing of the bottom of the ejector main piece. The bottom of the main piece being below the stokehold platform level would place it out of sight and therefore the damage it had sustained would not be realised.

The downward leakage at this stage would be of a mild character, due solely to the surging of the sea at the jetty and would not affect the cover joint with its defective turnbuckles, as the major part of whatever leakage occurred would pass unseen into the bilges via the fractured bottom of the ejector main piece. Later on when the vessel got to sea, the leakage would be pronounced and would be evident in increasing ratio at the hopper cover joint. The major portion would continue to pass direct and unobserved into the bilges from the fractured bottom of the main piece, the combined leakage resulting in the bilges filling right up and appearing over the stokehold platform in the wings. This condition of affairs obtained at or about 5 p.m. on the 15th September, when fireman Milliken who was on duty in the stokehold called the chief engineer's attention to it. The chief engineer immediately set the ballast pump to work to supplement the main engine plunger bilge pump to deal with the bilge water, and when both pumps at 5.30 p.m., on the 15th September, were evidently not lessening the flood water he, having previously called out the second engineer to assist, then informed the master of the state of affairs. About 6 p.m., on the 15th September, an attempt was made by inserting a number of prepared gap washers under the two stripped turnbuckle nuts to make the hopper cover joint water-tight. This procedure was not entirely successful, but the leakage from the cover joint was largely reduced. The master upon his arrival attempted, by means of a lashing, to stop

the remaining leak from the hopper cover joint, but apparently without success, and then instituted a bucket gang.

The chief and second engineers continued to attend to the pumps. The former suspected that a serious leak obtained in the region of the lower part of the ash hopper, but owing to the difficulty of making a detailed examination this leak was not definitely located. The flood water continued to increase and the chief engineer decided to open the bilge injection valve and upon raising the spindle found that the valve was stuck to its seat and would not allow the flood water to flow to the main circulating pump. He tapped the valve chest repeatedly without effective result, and finally abandoned the attempt.

It therefore follows that flood water was not pumped nor was sea water passed to the bilges by this proceeding.

The next important move was made about 7.30 p.m. when, finding the ballast pump bilge suction pipe was choked at its suction end, the chief engineer cut this pipe at the first bend which was situated about two feet below the then existing water level in the engine room.

The main engines finally stopped about 7.40 p.m., thus leaving the ballast pump as the sole means of dealing with the flood water. This pump finally stopped working through lack of steam at 8.15 p.m. After this time nothing further could be accomplished except to carry on with the bucket gang.

About 6.30 p.m., when it was seen that the water had increased considerably, and the fires were getting low, the master determined to keep the ship away to S by E. in an endeavour to reach Fishguard. When put on this course the vessel rolled to such an extent that work of any kind was an impossibility, and the vessel had to be brought head to wind and sea again. Distress signals were then shown, which were picked up by the s.s. "Hampshire Coast." This vessel arrived in the vicinity at 8 p.m. It was a very dark, dirty night with a heavy S.W. to W.S.W. gale blowing and a high sea running. It was agreed that the "Hampshire Coast" should tow the "Moyallon" to Fishguard if possible. An endeavour was made to get connection between the two vessels by the "Moyallon" dropping over a lighted buoy with a line attached, but the other vessel was unable to pick it up through the heavy weather then prevailing. About 7.40 p.m., the fires were put out and all pumps stopped at 8.15 p.m. The crew also had to stop baling, as the floors in the stokehold were adrift and washing about. Eventually the vessels were connected up by the master of the s.s. "Hampshire Coast" backing up his vessel's stern under the lee of the "Moyallon," thus enabling the crew of the latter to throw a heaving line on board. Two hawsers were then passed, the "Hampshire Coast" manoeuvred into position and towing began at 10.40 p.m., the vessels being approximately sixteen miles N.W. of Fishguard. About 2 a.m., on the 16th September, the hawsers parted, the vessels at the time were beginning to get into smoother water and were less than a mile off Strumble Head.

At 2.30 a.m. the vessel appeared to be settling down fast by the stern. Orders were given to launch the lifeboat. The crew managed to jump and scramble into the boat without any of their effects, and left the ship. At 2.45 a.m. the "Moyallon" sank stern first in 27 fathoms of water, Strumble Head bearing S.S.E. (mag.), distant 1 mile. The "Hampshire Coast" picked the boat up, took the crew on board and landed them at Fishguard.

It is the opinion of the Court that the whole crew behaved in a seamanlike manner and did their very best to save the ship in the difficult circumstances in which they were placed.

At the conclusion of the evidence, Mr. Davison, on behalf of the Board of Trade, submitted the following questions for the opinion of the Court:—

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 ship?

2. When the vessel left Carreg-y-llam at or about 9.15 a.m., on the 15th September last:—

(a) Was she in good and seaworthy condition as regards hull, equipments, machinery and pumps?

(b) Was the ash ejector in good and safe working order?

(c) Was the cargo properly stowed?

(d) Had the vessel the freeboard required for a summer voyage?

(e) Was the vessel in proper trim?

3. When was the ash ejector last used? By whom was it operated? Was it then in good working order? Was it properly operated and shut off?

4. What was the cause of water coming into the stokehold through the cover of the ash ejector at or about 5 p.m. of the 15th September last?

5. Were prompt and proper measures taken by the chief and second engineers to secure the cover of the ash ejector and to prevent ingress of water through it?

6. Did any serious quantity of water enter the stokehold through the ash ejector after the cover had been secured by the engineers?

7. Were prompt and proper measures taken by the chief and second engineers to get rid of the water which had accumulated in the stokehold bilges?

8. What pumps were set to work on the stokehold bilges? By whom, how and when was this done?

Was it correctly done and were the pumps working properly and only discharging water from the stokehold bilges thereafter?

9. What was the cause of the great increase of water in the stokehold and engine room between 5 and 8.15 p.m.?

Was every possible effort made by the engineers to ascertain the cause of the heavy influx of water, and to stop it?

10. At what time were the boiler fires extinguished, and at what time did the pumps cease to work from lack of steam?

11. What amount of water was in the stokehold when the pumps ceased working? Did the water increase rapidly thereafter?

12. Did the master and chief officer take what steps were possible to prevent the accumulation of water in the stokehold and engine room, and to save the ship?

13. Was the ship prematurely abandoned?

14. Was she navigated with proper and seamanlike care?

15. What was the cause of the foundering of the vessel at or about 2.45 a.m. of the 16th September last?

16. Was the loss of the s.s. "Moyallon" caused by the wrongful act or default of the master, chief officer, chief and second engineers, or of any of them?

The Court then considered the questions and answered as follows:—

1. The cost of the vessel to her owners was the sum of twenty-seven thousand five hundred pounds. (£27,500).

Her value when she sailed on her last voyage was about twelve thousand five hundred pounds. (£12,500).

The insurances effected upon the "Moyallon" were

Hull and machinery	...	£9,000
Divided, Hull	...	£6,000
" machinery	...	3,000
Disbursements	...	900
Freight	...	450
Total	...	£10,350

The underwriters bore 75 per cent of the Hull and Machinery insurance, the remaining 25 per cent being carried by the owners of the "Moyallon."

2. (a) The vessel when she left Carreg-y-llam was in good and seaworthy condition as regards hull, equipment, machinery and pumps.

(b) The ash ejector was not in good and safe working order.

(c) The cargo was properly stowed.

(d) The vessel had substantially the required free-board for a summer voyage.

(e) The vessel was loaded in the trim that is usual and proper for vessels of her class, which have machinery aft.

3. The ash ejector was last used between 6 and 8 a.m. on the 15th September, 1924, by the second engineer, who operated the necessary valves and by the fireman on watch who shovelled in the ashes. After the ejector was last used it was not, in the opinion of the Court in good working order. In the opinion of the Court it was not properly operated and shut off.

4. It is the opinion of the Court that due to leakage past the shutter of the ash ejector discharge chest, and that the screw threads of the ash hopper turn-buckle bolts were stripped, an effective joint could not be made between the hopper body and its cover and leakage occurred at this point.

5. Prompt and proper measures, not entirely successful, were taken by the chief and second engineers to secure the cover of the ash ejector, and prevent the ingress of water through it.

6. The main leakage into the vessel was, in the opinion of the Court, through the fractured main piece of the ejector, the leakage from the cover joint being of a minor character.

7. Prompt and proper, but, due to stress of circumstances, inadequate measures were taken to get rid of the accumulated flood water in the stokehold bilges.

8. The pumps that were set to work on the stokehold bilges were:—

(a) The main engine plunger bilge pump, which apparently operated throughout in normal fashion. (b) The auxiliary steam driven ballast pump, which delivered bilge water overside until the lower end of the bilge suction pipe became choked with dirt and ashes, whereupon the suction pipe was cut and holed and free access obtained for the suction end of this pump. (c) An attempt was made to use the main circulating pump, but owing to the bilge injection non-return valve failing to function, this manoeuvre was abandoned. At 5 p.m. on the 15th September, 1924, the chief engineer supplemented the main engine bilge pump with the ballast donkey pump and in the opinion of the Court this was correctly initiated and carried out.

9. It is the opinion of the Court that, due to faulty working of the main operating cock and shutter valve, primarily due to the absence of a

workable pressure gauge on the pressure side of the ejector, an abnormal pressure was put upon the low pressure side of the apparatus, whereby the shutter valve was rendered inoperative, the turnbuckle bolts for securing the hopper cover were partially stripped and the bottom of the main piece of the ejector was seriously fractured. Leakage of great volume then took place via the faulty shutter valve through the aperture caused by fracture of the main piece of the ejector.

The Court is of the opinion that the leakage from the jointing of the cover to the hopper was of a minor character. Every reasonable effort was made by the chief engineer and his staff to locate the heavy influx of water, but owing to the conditions then prevailing the source of leakage could not be determined, but, in the opinion of the chief engineer, emanated from the region of the base of the ejector.

10. The boiler fires were extinguished about 7.30 p.m. on the 15th September, 1924, and the pumps ceased to work from lack of steam about 8.15 p.m. on the 15th September, 1924.

11. The height of water in the stokehold at 8.15 p.m. when the pumps ceased working was about four feet above the level of the stokehold plates. The water continued to increase rapidly due to the increased submersion of the vessel.

12. In the opinion of the Court the master and chief officer did take what steps were possible in the severe weather prevailing to prevent the influx of water into the engine room and stokehold and made every endeavour to save the ship.

13. The ship was not prematurely abandoned.

14. The ship was navigated with proper and seamanlike care, except in so far it was not realised until 5.30 p.m. that the ship was getting deeper in the water.

15. The cause of the foundering of the vessel was that the leakage from the ash ejector and its connections filled up the engine and boiler spaces to the extent that the vessel's reserve buoyancy was used up and she sank by the stern.

16. The loss of the s.s. "Moyallon" was not caused by the wrongful act or default of the master, chief officer and chief engineer, but in the opinion of the court the "Moyallon" was lost inferentially by the inexperienced second engineer failing to open up the shutter valve of the ash ejector discharge valve (when the lid of the hopper was also screwed down) before the pressure cock was opened, whereby the train of events which ultimately resulted in the foundering of the vessel was set up.

JAMES ROCHE, *Judge.*

We concur,

H. C. FENWICK  
WM. PETERKIN  
WM. M. FLETCHER } *Assessors.*

(Issued by the Board of Trade in London  
[on Wednesday the 18th day of February, 1925.]

LONDON:  
PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE.

To be purchased directly from H.M. STATIONERY OFFICE at the following addresses:  
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1925.

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