

REPORT ON MACHINERY.

MON. 19 DEC 1892

Port of *Belfast*

Received at London Office

18

No. in Survey held at *Belfast*
Reg. Book.Date, first Survey *March 30th* Last Survey *15th Dec 1892*(Number of Visits *19*)6 Supr on the *Steel Twin Screw Steamer "Islam"*Tons $\left\{ \begin{array}{l} \text{Gross } 5402 \\ \text{Net } 3506 \end{array} \right.$ Master *R. Poland* Built at *Belfast*By whom built *Harland & Wolff Ltd.*When built *1892*Engines made at *Belfast*By whom made *Harland & Wolff Ltd.*when made *1892*Milers made at *Belfast*By whom made *Harland & Wolff Ltd.*when made *1892*Registered Horse Power *505*Owners *Edward Bates & Sons*Port belonging to *Liverpool*Horse Power as per Section 28 *505*

FINES, &c.— Description of Engines *Twin screws Triple Expansion* No. of Cylinders *Six*
 Diameter of Cylinders *20"; 33 1/2"; 56"* Length of Stroke *48"* Revolutions per minute *75* Diameter of Screw shaft *as per rule 11.46*
 Diameter of Tunnel shaft *as per rule 10.89* Diameter of Crank shaft journals *12 1/2"* Diameter of Crank pin *12 1/2"* Size of Crank webs *8 3/4" x 16"*
 Diameter of screw *14' 10"* Pitch of screw *20' 0"* No. of blades *3* State whether moveable *yes* Total surface *56' each screw*
 of Feed pumps *two* Diameter of ditto *4 1/4"* Stroke *24"* Can one be overhauled while the other is at work *one on each engine*
 of Bilge pumps *two* Diameter of ditto *5"* Stroke *24"* Can one be overhauled while the other is at work *one on each engine*
 of Donkey Engines *4 & 8 centrifugal* Sizes of Pumps *Waters simplex 10" xpl 8" pump 21" stroke* No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room *Three 3" dia* Duplex *Waters simplex 10" xpl 8" pump 21" stroke*
 2 hold, two 2 1/2" suctions No 3 hold, two 2 1/2" No 4 hold (aft) two 2 1/2" No 5 hold two 2 1/2" No 6 one 3"
 Bilge injections 2 sizes 5 1/2" Connected to condenser, or to circulating pump *circ p.* Is a separate donkey suction fitted in Engine room & size *yes*
 Are the bilge suction pipes fitted with roses *yes* Are the roses in Engine room always accessible *yes* Are the sluices on Engine room bulkheads always accessible *none*
 connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *valves & cocks*
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates *yes* Are the discharge pipes above or below the deep water line *below*
 Are they each fitted with a discharge valve always accessible on the plating of the vessel *yes* Are the blow off cocks fitted with a spigot and brass covering plate *yes*
 How are they protected *strong wood casing*
 pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times *yes*
 bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges *yes*
 stern tube, propeller, screw shaft, and all connections examined in dry dock *before launching* the screw shaft tunnel watertight *yes*
 Is it fitted with a watertight door *yes* worked from *main deck*

ERS, &c.— (Letter for record *S*)Total Heating Surface of Boilers *8648*Description of Boilers *2 Double ended & 2 Single ended* Working Pressure *200* Tested by hydraulic pressure to *400*Can each boiler be worked separately *yes* Area of fire grate in each boiler *81 S.E.* No. and Description of safety valves to *40 1/2 S.E.*Two, Cockburn's Area of each valve *9.62 S.E.* Pressure to which they are adjusted *205 lbs* Are they fittedSmallest distance between boilers or uptakes and bunkers or woodwork *about 4 ft* Mean diameter of boilers *12' 8"*Material of shell plates *steel* Thickness *1 3/8"* Description of riveting: circum. seams *double riveted* long. seams *double straps*Pitch of rivets *9" x 4 1/2"* Lap of plates or width of butt straps *21' x 1 3/32" thick*Working pressure of shell by rules *224 1/2* Size of manhole in shell *16" x 12"*No. and Description of Furnaces in each boiler *four. Two. Material steel* Outside diameter *43 1/2"*Length of Truss part *7' 0"* Thickness of plates *5/8"* Description of longitudinal joint *welded* No. of strengthening rings *9 ribs*Working pressure of furnace by the rules *213* Combustion chamber plates: Material *steel* Thickness: Sides *19/32* Back *19/32* Top *5/8* Bottom *3/4*Pitch of stays to ditto: Sides *7 3/4* Back *7 3/4* Top *8 1/8 x 7 3/8* If stays are fitted with nuts or riveted heads *no* Working pressure by rules *203*Material of stays *steel* Diameter at smallest part *1 3/8"* Area supported by each stay *60"* Working pressure by rules *200* End plates in steam space:Material *steel* Thickness *1 1/16"* Pitch of stays *18 3/4 x 16 1/4* How are stays secured *doub nuts & washers* Working pressure by rules *200* Material of stays *steel*Diameter at smallest part *2 7/8"* Area supported by each stay *274"* Working pressure by rules *210* Material of Front plates at bottom *steel*Thickness *15/16"* Material of Lower back plate *steel* Thickness *15/16"* Greatest pitch of stays *as approved* Working pressure of plate by rules *200*Diameter of tubes *3 1/4"* Pitch of tubes *4 1/2 ins* Material of tube plates *steel* Thickness: Front *7/8* Back *3/4* Mean pitch of stays *9"*Pitch across wide water spaces *14 1/2* Working pressures by rules *200 lbs* Girders to Chamber tops: Material *steel* Depth andthickness of girder at centre *two 5 1/2 x 7/8 d. in d. Length as per rule 37 3/4 S.E.* Distance apart *8 1/8"* Number and pitch of Stays in each *four x 7 3/8*Working pressure by rules *226 S.E.* Superheater or Steam chest; how connected to boiler *none* Can the superheater be shut off and the boiler workedseparately *yes* Diameter *Length* Thickness of shell plates *Material* Description of longitudinal joint *Diam. of rivets*Pitch of rivets *Working pressure of shell by rules* Diameter of flue *Material of flue plates* ThicknessIf stiffened with rings *Distance between rings* Working pressure by rules *End plates: Thickness* How stayedWorking pressure of end plates *Area of safety valves to superheater* Are they fitted with exhaust gear

DONKEY BOILER— Description *Single ended main boiler used for auxiliary purposes.*

Made at _____ By whom made _____ When made _____ Where fired _____

Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ Description of safety valves _____

No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____

Diameter of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____

Description of riveting long. seams _____ Diameter of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____

Lap of plating _____ Per centage of strength of joint _____ Thickness of shell crown plates _____ Radius of do. _____ No. of Stays to do. _____

Dia. of stays _____ Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description of joint _____

Thickness of furnace crown plates _____ Stayed by _____ Working pressure of shell by rules _____

Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:— Piece crank shaft. 2 c.c. propeller blades & set studs & nuts. 2 pair top & 1 pair bottom end braces. 12 shaft coupling bolts. 6 studs piston rod gland. 6 studs & nuts for v. spindles. 6 studs feed pump & ecc. shaft bolts. Air pump valves, rod, bucket, guards. Centrif. spindle & impeller. 2 feed & 2 bilge pump valves. 3 cyl. escape valve springs. 1 feed escape spr. 4 brass liners quadrant blocks. 25 Condenser tubes. 1 H.P. & 1 L.P. valve spindles & neck bolts. 12 pump ring bolts. 2 main bearing bolts. 2 top end & 2 bottom end con. rod bolts. 8 H.P. & 4 L.P. piston rings. 2 sets piston valve rings. 6 studs & nuts for manhole & Manufacturer. 2 feed check valves. 4 safety valve springs. Tube clappers. Iron bolts & nuts.

The foregoing is a correct description.

Horland & Co. Ltd. Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel has been constructed and fitted on board under special survey. The approved photopoints of the boilers forwarded herewith have been adhered to, & the boilers and main & pipes have been tested by water to double the working pressure.

Before leaving for Cardiff where the vessel is to load the engines were worked under full steam for several hours in the Belfast Lough on the 15th inst. The safety valves are adjusted to blow off at 205 lbs per sq in excepting those of the Centre forward boiler which were found adjusted to too high a pressure & will require to be readjusted in Cardiff. It is arranged that this shall be done and the Cardiff Surveyors have been advised.

The pumping plan is enclosed herewith.

The electric lighting has been carried out by Messrs W. Hallen & Co. The currents are produced by two Allen's Patent Dynamos. 260 volts per 90 Amperes. 62 volts at the terminals. The usual form with further particulars will be forwarded.

The machinery in my opinion renders this vessel eligible for the record of + LMC 12.92 in the Register Book.

Certificate (if required) to be sent to _____

The amount of Entry Fee... £ 3 : 0 : 0 When applied for, _____

Special ... £ 45 : 5 : 0 14th Dec. 1892

Donkey Boiler Fee ... £ _____

Travelling Expenses (if any) £ _____

When received, _____

Engineer Surveyor to Lloyd's Register of British & Foreign Steamships

G. H. Jones

19.12.92

Committee's Minute TUES. 20 DEC 1892

Assigned + LMC 12, 92

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