

# REPORT ON MACHINERY.

Port of *Belfast*

MON. 10 DEC 1894

Received at London Office 18

No. in Survey held at *Belfast* Date, first Survey *May 17<sup>th</sup> 1894* Last Survey *Dec 6<sup>th</sup> 1894*  
 Reg. Book. *Belfast* (Number of Visits *37*)  
 on the *Steel screw Steamer "Ulstermore"* Tons { Gross *6326*  
 Net *4142*  
 Master *John Greaney* Built at *Belfast* By whom built *Harland & Wolff, Ltd* When built *1894*  
 Engines made at *Belfast* By whom made *Harland & Wolff, Ltd* when made *1894*  
 Boilers made at *"* By whom made *"* when made *1894*  
 Registered Horse Power *610* Owners *W<sup>m</sup> Johnston & Co Ltd* Port belonging to *Liverpool*  
 Nom. Horse Power as per Section 28 *610*

ENGINES, &c.— Description of Engines *Triple Expansion* No. of Cylinders *Three*  
 Diameter of Cylinders *30 1/2; 50; 82*; Length of Stroke *60* Revolutions per minute *66* Diameter of Screw shaft *as per rule 15.6*  
 Diameter of Tunnel shaft *as per rule 14.8* Diameter of Crank shaft journals *16 1/2* Diameter of Crank pin *16 1/2* Size of Crank webs *22" x 12"*  
 Diameter of screw *19" 2"* Pitch of screw *22" 6"* No. of blades *4* State whether moveable *yes* Total surface *96.5"*  
 No. of Feed pumps *2* Diameter of ditto *4 1/2* Stroke *33"* Can one be overhauled while the other is at work *yes*  
 No. of Bilge pumps *2* Diameter of ditto *5"* Stroke *33"* Can one be overhauled while the other is at work *yes*  
 No. of Donkey Engines *Four* Sizes of Pumps *Weir feed (riv) 10 x 8 x 26"* No. and size of Suctions connected to both Bilge and Donkey pumps  
*Watson's Patent 10 x 10 x 10"*  
*Har. & W. Dup. S.R. 9 x 6 x 4"*  
*Working ton 6 x 4 x 6 3/4"*  
 In Engine Room *Three 3 1/2" diam* No. 1 hold, one 3 1/2". No 2 hold, three 3 1/2".  
 No 3 hold, four 3 1/2". No 4 hold, one 3 1/2". No 5 hold, one 3 1/2". Tunnel suction 3 1/2"  
 No. of bilge injections *1* sizes *9"* Connected to condenser, or to circulating pump *circ. p.* Is a separate donkey suction fitted in Engine room & size *yes 3 1/2"*  
 Are all 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*  
 Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *larger ones, valves; smaller, 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 (none above)*  
 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*  
 What pipes are carried through the bunkers *Bilge pipes to No 3 hold well* How are they protected *strong wood casings*  
 Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times *yes*  
 Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges *yes*  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock *before launch* Is the screw shaft tunnel watertight *yes*  
 it fitted with a watertight door *yes* worked from *upper Eng. Rm. gratings* *3/12/94*

BOILERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *10510 sq ft*  
 and Description of Boilers *Two double ended & two single ended* Working Pressure *180 lb* Tested by hydraulic pressure to *360*  
 Date of test *4.10.94* Can each boiler be worked separately *yes* Area of fire grate in each boiler *106 sq ft* No. and Description of safety valves to  
 boiler *Two, Cockburn's* Area of each valve *17.72 sq ft* Pressure to which they are adjusted *185 lb* Are they fitted  
 easing gear *yes* Smallest distance between boilers or uptakes and bunkers or woodwork *abt 2 ft.* Mean diameter of boilers *14" 3"*  
 Material of shell plates *steel* Thickness *1 3/8"* Description of riveting: circum. seams *Triple riveted.* long. seams *Double straps*  
 Diameter of rivet holes in long. seams *1 7/16"* Pitch of rivets *9 3/8"* Lap of plates or width of butt straps *1" 9" x 1 1/16"*  
 Percentages of strength of longitudinal joint *93.5%* Working pressure of shell by rules *198* Size of manhole in shell *16" x 12"*  
 of compensating ring *2' 7" x 2' 3" x 1 3/8"* No. and Description of Furnaces in each boiler *6 ribbed D.S.* Material *Steel* Outside diameter *41 1/2"*  
 Thickness of plain part *9 1/16"* Description of longitudinal joint *welded* No. of strengthening rings *-*  
 Working pressure of furnace by the rules *195* Combustion chamber plates: Material *Steel* Thickness: Sides *19/32"* Back *19/32"* Top *3/8"* Bottom *3/4"*  
 of stays to ditto: Sides *8 1/4"* Back *8 1/4"* Top *8 1/4"* If stays are fitted with nuts or riveted heads *nuts inside* Working pressure by rules *179*  
 Material of stays *Steel* Diameter at smallest part *1 3/8"* Area supported by each stay *65 1/2"* Working pressure by rules *180* End plates in steam space:  
 Material *Steel* Thickness *1 1/16"* Pitch of stays *17 1/4" x 19"* How are stays secured *doub. nuts* Working pressure by rules *180* Material of stays *steel*  
 Diameter at smallest part *2 1/8"* Area supported by each stay *320"* Working pressure by rules *180* Material of Front plates at bottom *steel*  
 Thickness *1 5/16"* Material of Lower back plate *steel* Thickness *1 5/16"* Greatest pitch of stays *as approx* Working pressure of plate by rules *180*  
 Diameter of tubes *3 1/4"* Pitch of tubes *4 1/2"* 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 *180* Girders to Chamber tops: Material *not known* Depth and  
 thickness of girder at centre *4.5 x 3 1/4" x 1 3/4" suspended 2 3/4" stays. 30 3/4" D.S.* Distance apart *8 1/4"* Number and pitch of Stays in each *4 at 8" D.S.*  
*7 1/4" x 1 3/4" riv. lided 27 1/2 S.S.* Working pressure by rules *180* Superheater or Steam chest; how connected to boiler *-* Can the superheater be shut off and the boiler worked  
 separately *-* Diameter *-* Length *-* Thickness of shell plates *-* Material *-* Description of longitudinal joint *-* Diameter of rivet  
 holes *-* Pitch of rivets *-* Working pressure of shell by rules *-* Diameter of flue *-* Material of flue plates *-* Thickness *-*  
 If stiffened with rings *-* Distance between rings *-* Working pressure by rules *-* End plates: Thickness *-* How stayed *-*  
 Working pressure of end plates *-* Area of safety valves to superheater *-* Are they fitted with easing gear *-*

**DONKEY BOILER**— Description *Single ended main boiler used for auxiliary purposes*  
 Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 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 \_\_\_\_\_ Rivets \_\_\_\_\_ 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:— *Two c.i. propeller blades & 9 studs. Set crank pin braces. Three safety-valve springs. Light coupling bolts for crank shaft. Eccentric strap & sheave. Valve spindle. 2 main bearings to 2 top & 2 bottom end connecting rod bolts. 12 bolts & nuts for pistons. 18 boiler tubes. 20 condenser tubes. 2 brass guards, air pump. Air pump rod. 4 feed pump valves & seats, & 2 bilge ditto. Main bearing bush. The foregoing is a correct description, Centrif. pump spindle. Assembled bolts & nuts, fire bars, tube stopper & escape valve springs etc.*  
*Harland & Wolff* Manufacturer.

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

The machinery has been constructed under special survey, in accordance with the Rules & with the approved tracings of the boilers. Each length of main steam pipe has been tested to double the working pressure as required. The engines & boilers are practically duplicates of those fitted in the S.S. "Kempmore" (Belfast report No 4337). The pumping arrangements are fitted in accordance with the Rules & the enclosed photoprint. A report on the electric lighting installation fitted by Messrs W & A Allen & Co will be forwarded shortly. Photoprints of the boilers & engine pumping arrangements & invoice notes for the boiler plates & flues are forwarded herewith. The machinery in my opinion renders the vessel eligible for the record of **+ L.M.C. 12.94** in the Register Book.

It is submitted that this vessel is eligible for **THE RECORD + L.M.C. 12-94**

The Boilers to be recorded as follows  
 PDBESB 184p 93318 HS 10510 (3) 11-12-94

APRR  
 14-12-94

Certificate (if required) to be sent to \_\_\_\_\_  
 The amount of Entry Fee... £ 3 : 0 :  
 Special ... .. £ 50 : 10 :  
 Donkey Boiler Fee ... .. £ : :  
 Travelling Expenses (if any) £ : :  
 3 MACHINERY CERTIFICATE WRITTEN

*W. G.*  
*A. L. Jones*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.  
 12

Committee's Minute  
 Assigned  
 TUES. 11 DEC 1894  
 + L.M.C. 12.94

