

# REPORT ON MACHINERY.

Port of *Belfast*

SAI. 14 MAR 1903

No. in Survey held at *Belfast* Date, first Survey *23<sup>d</sup> Sept 1902* Last Survey *6<sup>th</sup> March 1903*  
Reg. Book. *S.S. Colonial* (Number of Visits *54*)

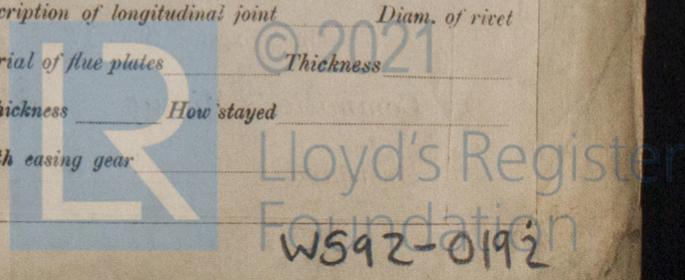
Master *Belfast* Built at *Belfast* By whom built *Workman Clark & Co* Gross *4955* Tons  
Engines made at *Belfast* By whom made *-* when made *-* Net *3144* Tons  
Boilers made at *-* By whom made *-* when made *-*

Registered Horse Power *-* Owners *Charterers S.S. Coy. L<sup>d</sup>* Port belonging to *Liverpool*  
Nom. Horse Power as per Section 28 *470* Is Refrigerating Machinery fitted *No* Is Electric Light fitted *Yes*

**ENGINES, &c.**—Description of Engines *Triple Expansion Direct Acting* No. of Cylinders *3* No. of Cranks *3*  
 Dia. of Cylinders *25"-41"-68"* Length of Stroke *54* Revs. per minute *70* Dia. of Screw shaft as per rule *14.8* Lgh. of stern bush *72*  
 Dia. of Tunnel shaft as per rule *13.48* Dia. of Crank shaft journals as per rule *14.15* Dia. of Crank pin *14.5* Size of Crank webs *26x10* Dia. of thrust shaft under collars *14.5* Dia. of screw *17.6* Pitch of screw *19.0* No. of blades *4* State whether moveable *Yes* Total surface *90sqft.*  
 No. of Feed pumps *2* Diameter of ditto *4* Stroke *26* Can one be overhauled while the other is at work *Yes*  
 No. of Bilge pumps *2* Diameter of ditto *4.5* Stroke *26* Can one be overhauled while the other is at work *Yes*  
 No. of Donkey Engines *5* Sizes of Pumps *Ballast 9x10x10 Duplex* No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room *Four - 3.5* *General 8x6x8* In Holds, &c. *Eleven - 3.5 one - 3*  
*Sanitary 4x4x6*  
*Max. Water 6x4.5x6*  
 No. of bilge injections *8* Connected to condenser, or to circulating pump *Pumps a separate donkey suction fitted in Engine room & size 3.5-3.5*  
 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 *No*  
 Are all connections with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *Both*  
 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 *Both*  
 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 *Fore Hold Suctions* How are they protected *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 launching* the screw shaft tunnel watertight *Stated to be*  
 Is it fitted with a watertight door *Yes* worked from *Upper platform Engine Room*

**BOILERS, &c.**— (Letter for record *-*) (Total Heating Surface of Boilers) *8448sqft* Is forced draft fitted *No*  
 No. and Description of Boilers *Two - Double End Girder* Working Pressure *190lb* Tested by hydraulic pressure to *380lb*  
 Date of test *3-2-03* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *115sqft.* No. and Description of safety valves to each boiler *Two - Direct Spring* Area of each valve *11.04sq* Pressure to which they are adjusted *190lb* Are they fitted with easing gear *Yes*  
 Smallest distance between boilers or uptakes and bunkers *on woodwork* *About 14* Mean dia. of boilers *15.0* Length *7.0* Material of shell plates *Steel*  
 Thickness *1.5* Range of tensile strength *28-32* Are they welded or flanged *No* Descrip. of riveting: cir. seams *Lap & Butt* Long. seams *Butt & Lap*  
 Diameter of rivet holes in long. seams *1.5* Pitch of rivets *9.5* Lap of plates or width of butt straps *2.5*  
 Per centages of strength of longitudinal joint rivets *80.1* Working pressure of shell by rules *220lb* Size of manhole in shell *16x12*  
 Size of compensating ring *McNeil* No. and Description of Furnaces in each boiler *6 - Morrison* Material *Steel* Outside diameter *44.5*  
 Length of plain part *top 5* Thickness of plates *bottom 1.2* Description of longitudinal joint *Weld* No. of strengthening rings *1*  
 Working pressure of furnace by the rules *213lb* Combustion chamber plates: Material *Steel* Thickness: Sides *1.2* Back *1.2* Top *1.2* Bottom *1*  
 Pitch of stays to ditto: Sides *8.5 x 7.5* Back *8.5 x 7.5* Top *8.5 x 7.5* stays are fitted with nuts or riveted heads *Nuts inside* Working pressure by rules *201lb*  
 Material of stays *Steel* Diameter at smallest part *1.8* Area supported by each stay *6.5sq* Working pressure by rules *192lb* and plates in steam space:  
 Material *Steel* Thickness *1.5* Pitch of stays *19x15* How are stays secured *Nuts & Washers* Working pressure by rules *252lb* Material of stays *Steel*  
 Diameter at smallest part *2.5* Area supported by each stay *28.5sq* Working pressure by rules *214lb* Material of Front plates at bottom *Steel*  
 Thickness *1* Material of Lower back plate *1* Thickness *1* Greatest pitch of stays *1* Working pressure of plate by rules *1*  
 Diameter of tubes *3.5* Pitch of tubes *4.5 x 4.5* Material of tube plate *Steel* Thickness: Front *1.2* Back *1.2* Mean pitch of stays *9.5 x 9.5*  
 Pitch across wide water spaces *14.5* Working pressures by rules *322lb* with *3/4" diameter* Girders to Chamber tops: Material *Steel* Depth and thickness of girder at centre *(22 x 4.5 x 2)* Length as per rule *40.5* Distance apart *8.5 x 8.5* Number and pitch of Stays in each *4 - 7.5*  
 Working pressure by rules *220lb* 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 *-* Diam. 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 *-*

If not stated whether, and when, one will be sent - In a Report also sent on the hull of the ship



W592-0192

**DONKEY BOILER**— No. *one* Description *Steel Cylindrical Single End*  
 Made at *Belfast* By whom made *Workman Clark & Co. L<sup>td</sup>* When made *1903* Where fixed *Belfast*  
 Working pressure *190 lbs* Tested by hydraulic pressure to *380 lbs* No. of Certificate *228* Fire grate area *43 1/2* Description of safety valves *Direct Spring*  
 No. of safety valves *2* Area of each *4 9/16* Pressure to which they are adjusted *190 lbs* fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *13'-0"* Length *9'-6"* Material of shell plates *Steel* Thickness *1/4"* Range of tensile strength *28-32* Descrip. of riveting long. seams *Butt Triple* Dia. of rivet holes *1 1/8"* Whether punched or drilled *Drilled* Pitch of rivets *2 1/2"*  
 Lap of plating *10 1/4"* Per centage of strength of joint *88 1/2* Rivets *88 1/2* Thickness of shell plates *1 1/4"* Radius of do. *1 1/2"* No. of Stays to do. *19 1/2 x 15*  
 Dia. of stays *2 1/4, 3, 3 1/4* Diameter of furnace Top *4 1/4* Bottom *4* Length of furnace *6'-0"* Thickness of furnace plates *3/32"* Description of joint *Weld* Thickness of furnace plates *3/32, 5/32, 3/4* Stayed by *1 1/2" Crew stays pitch 8 1/2" x 8 1/2"* Working pressure of shell by rules *214 lbs*  
 Working pressure of furnace by rules *216 lbs* Diameter of uptake *10"* Thickness of uptake plates *7/16"* Thickness of water-tubes *4 1/8 x 4 1/8"*

**SPARE GEAR.** State the articles supplied:— *3 Crank Shaft: 1 Propeller shaft: 1 Propeller boss: 1 Manuf. Bronze propeller blade: 3 cast iron Propeller blades: 1 Patent Shaft Coupling and set connecting rod brasses: 1 air pump bucket & rod: 1 circulation pump impeller & shaft: 1 rubber sheet & strap: 1 set of valves & spindle & all gear to load & haul & etc*  
 The foregoing is a correct description,  
 FOR WORKMAN, CLARK & CO., LIMITED.  
 M. H. Bell Manufacturer.

Dates of Survey while building  
 During progress of work in shops— *1902 - Dec. 23, 29, Oct. 1, 3, 7, 10, 14, 22, 28, 30, Nov. 3, 6, 10, 17, 20, 24, 27, 28*  
 During erection on board vessel— *Dec. 5, 5, 9, 11, 18, 19, 19, 1903 - Jan. 7, 8, 8, 9, 12, 14, 14, 16, 16, 21, 22, 23, 26, 26, 28*  
 Total No. of visits *54* Feb. 2, 3, 4, 4, 6, 12, 16, 24, 24, 27, March 3, 6  
 Is the approved plan of main boiler forwarded herewith *Yes*  
 " " " donkey " " " *Yes*

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

Material of screw shaft *Sp. Bes. Iron* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *Yes*  
 Is the after end of the liner made water-tight in the propeller boss *Yes* If the liner is in more than one length are the joints burned *Yes*  
 If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *Yes* If two liners are fitted, is the shaft lapped or protected between the liners *Yes*

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules; the workmanship and the material is of good description throughout, and on trial in Belfast Lough it worked satisfactorily.  
 In my opinion, it is eligible to have record + L.M.C. 3-03 & "Electro Light" in the Register Book.

It is submitted that this vessel is eligible for THE RECORD— L.M.C. 3:03 Elec. Light.

15 C.F.

*R.L.*  
16.3.03

The amount of Entry Fee. £ 3 : - :  
 Special £ 43 : 10 :  
 Donkey Boiler Fee £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, 9-3-03  
 When received, 17-3-03

*R. J. Beveridge*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute  
 Assigned

TUES. 17 MAR 1903

+ L.M.C. 3,03



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Certificate (if registered) to be sent to this office

The Surveyors are requested not to write on or below the space for Committee's Minute.

MACHINERY CERTIFICATE WRITTEN.