

# REPORT ON MACHINERY.

No. 6250

Port of Belfast  
 Received at London Office MON. JAN 14 1907  
 No. in Survey held at Belfast Date, first Survey 1906, May 21 Last Survey 8<sup>th</sup> Jan<sup>y</sup> 1907  
 Reg. Book. on the S.S. Sierra Leone (Number of Visits 48)  
 Master R. Minto Built at Belfast By whom built Harland & Wolff Tons { Gross 3730 Net 2327  
 Engines made at Belfast By whom made Harland & Wolff L<sup>d</sup> When built 1907  
 Boilers made at \_\_\_\_\_ By whom made \_\_\_\_\_ when made \_\_\_\_\_  
 Registered Horse Power \_\_\_\_\_ Owners Dutch & African S. N. Coy L<sup>d</sup> Port belonging to London  
 Nom. Horse Power as per Section 28 528 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

**ENGINES, &c.**—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 26-44-74 Length of Stroke 48 Revs. per minute 76 Dia. of Screw shaft as per rule 14.98 Material of screw shaft S. Steel  
 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 ✓ If two liners are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 68  
 Dia. of Tunnel shaft as per rule 13.7 Dia. of Crank shaft journals as per rule 14.38 Dia. of Crank pin 15 Size of Crank webs 21x10<sup>3</sup> Dia. of thrust shaft under collars 14<sup>3</sup>/<sub>4</sub> Dia. of screw 17-8 Pitch of Screw 18'-0" No. of Blades 4 State whether moveable Yes Total surface 84<sup>1</sup>/<sub>2</sub> sq. ft.  
 No. of Feed pumps 2 Diameter of ditto 4<sup>1</sup>/<sub>2</sub> Stroke 28 Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 4 Stroke 28 Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 4 Sizes of Pumps Waubert's 8x10<sup>1</sup>/<sub>2</sub>x18 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room 3-3<sup>1</sup>/<sub>2</sub> 1 West 9x12<sup>1</sup>/<sub>2</sub> In Holds, &c. 4-3<sup>1</sup>/<sub>2</sub> 4-3"  
 No. of Bilge Injections / sizes 8 Connected to condenser, or to circulating pump Pumps a separate Donkey Suction fitted in Engine room & size Yes - 3<sup>1</sup>/<sub>2</sub>  
 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 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 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  
 What pipes are carried through the bunkers Fore hold suction 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  
 Dates of examination of completion of fitting of Sea Connections 7-10-06 of Stern Tube 7-10-06 Screw shaft and Propeller 7-10-06  
 Is the Screw Shaft Tunnel watertight Stated due Is it fitted with a watertight door Yes worked from Upper deck

**BOILERS, &c.**—(Letter for record 5) Manufacturers of Steel W. Colville Sons L<sup>d</sup>  
 Total Heating Surface of Boilers 7395 sq. ft. Forced Draft fitted Yes No. and Description of Boilers 3 Single End, Cylind.  
 Working Pressure 205 lbs Tested by hydraulic pressure to 410 lbs Date of test 19-11-06 No. of Certificate 388  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 57<sup>3</sup>/<sub>4</sub> sq. ft. No. and Description of Safety Valves to each boiler 2-Direct Springs of each valve 8'29 sq. Pressure to which they are adjusted 205 lbs Are they fitted with easing gear Yes  
 Smallest distance between boilers on plates and bunkers on woodwork 4 ft 5 in Mean dia. of boilers 14-5 Length 11-9 Material of shell plates Steel  
 Thickness 1<sup>15</sup>/<sub>32</sub> Range of tensile strength 29-32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Lap Weld  
 long. seams Auto Lubbo Diameter of rivet holes in long. seams 1<sup>1</sup>/<sub>2</sub> Pitch of rivets 9<sup>1</sup>/<sub>2</sub> Top of plates or width of butt straps 22<sup>1</sup>/<sub>4</sub>  
 Per centages of strength of longitudinal joint rivets 94.4 Working pressure of shell by rules 236 lbs Size of manhole in shell 16 x 12  
 Size of compensating ring W. Peile No. and Description of Furnaces in each boiler 3-Browns Material Steel Outside diameter 46<sup>9</sup>/<sub>16</sub>  
 Length of plain part top 9 Thickness of plates crown 3<sup>2</sup>/<sub>32</sub> Description of longitudinal joint Weld No. of strengthening rings ✓  
 Working pressure of furnace by the rules 211 lbs Combustion chamber plates: Material Steel Thickness: Sides 19-21 Back 19 Top 19-21 Bottom 7  
 Pitch of stays to ditto: Sides 7<sup>1</sup>/<sub>2</sub> x 7<sup>3</sup>/<sub>8</sub> Back 7<sup>1</sup>/<sub>2</sub> x 7<sup>3</sup>/<sub>8</sub> Top 9<sup>1</sup>/<sub>2</sub> x 7<sup>3</sup>/<sub>8</sub> If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 209 lbs  
 Material of stays Steel Diameter at smallest part 1<sup>3</sup>/<sub>8</sub> x 1<sup>1</sup>/<sub>2</sub> Area supported by each stay 5<sup>1</sup>/<sub>8</sub> Working pressure by rules 232 lbs plates in steam space:  
 Material Steel Thickness 1<sup>15</sup>/<sub>32</sub> Pitch of stays 18<sup>1</sup>/<sub>2</sub> x 15<sup>1</sup>/<sub>4</sub> How are stays secured Nuts Working pressure by rules 238 lbs Material of stays Steel  
 Diameter at smallest part 2<sup>9</sup>/<sub>16</sub> x 2<sup>3</sup>/<sub>8</sub> supported by each stay 286<sup>3</sup>/<sub>4</sub> Working pressure by rules 225 lbs Material of Front plates at bottom Steel  
 Thickness 1<sup>5</sup>/<sub>16</sub> Material of Lower back plate Steel Thickness 1<sup>5</sup>/<sub>16</sub> Greatest pitch of stays 12<sup>3</sup>/<sub>4</sub> Working pressure of plate by rules 415 lbs  
 Diameter of tubes 2<sup>1</sup>/<sub>2</sub> Pitch of tubes 3<sup>3</sup>/<sub>4</sub> x 3<sup>3</sup>/<sub>4</sub> Material of tube plate Steel Thickness: Front 1<sup>5</sup>/<sub>16</sub> Back 1<sup>3</sup>/<sub>16</sub> Mean pitch of stays 4<sup>1</sup>/<sub>2</sub> x 4<sup>1</sup>/<sub>2</sub>  
 Pitch across wide water spaces 13<sup>3</sup>/<sub>4</sub> Working pressures by rules 386 lbs Chamber tops: Material Iron Depth and thickness of girder at centre 9 x (8 x 2) Length as per rule 29<sup>1</sup>/<sub>32</sub> Distance apart 8 x 9<sup>1</sup>/<sub>4</sub> Number and pitch of stays in each 3-7<sup>3</sup>/<sub>8</sub>  
 Working pressure by rules 215 lbs 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 \_\_\_\_\_

W768-0008

If a Report also sent on the Hull of the Ship, one will be sent by the Registrar.



VERTICAL DONKEY BOILER— Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

Working pressure tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety Valves \_\_\_\_\_

No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_

If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_

Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_

Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_

Working pressure of shell by rules \_\_\_\_\_ 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 \_\_\_\_\_

Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

SPARE GEAR. State the articles supplied:— 2 Propeller blades; 14 P & L.P. slide valve spindles  
 Pair crank pin bushes; Impeller for Cent. Circ. Pump; air pump  
 rod & bucket; 20 Condenser tubes; escape valve & spindles; half set  
 fire bars set & all gear to Lloyd's Rules extra.

The foregoing is a correct description,

Manufacturer.

Harland & Wolff Ltd  
 on 10/1

Dates of Survey while building: During progress of work in shops— 1906. May 21, 29, 31 June 8, 11, 14, 19, 25 July 6. Aug 3, 9, 14, 24, 30. Sept 7.  
 During erection on board vessel— 6, 8, 14, 19, 26. Oct 4, 8, 10, 11, 14, 19 run to 8<sup>th</sup> Jan<sup>y</sup> 1907  
 Total No. of visits 48.

Is the approved plan of main boiler forwarded with 33. Harris, L.S. Sent  
 " " " donkey " " "

Dates of Examination of principal parts—Cylinders 11-6-06 Slides \_\_\_\_\_ Covers \_\_\_\_\_ Pistons \_\_\_\_\_ Rods \_\_\_\_\_  
 Connecting rods 27-11-06 Crank shaft 6-7-06 Thrust shaft \_\_\_\_\_ Tunnel shafts \_\_\_\_\_ Screw shaft 2-11-06 Propeller 30-10-06  
 Stern tube 26-10-06 Steam pipes tested 15-12-06 Engines and boiler seatings 19-12-06 Engines holding down bolts 19-12-06  
 Completion of pumping arrangements 13-12-06 Boilers fixed 13-12-06 Engines tried under steam 20-12-06  
 Main boiler safety valves adjusted 20-12-06 Thickness of adjusting washers 13-14 / 32  
 Material of Crank shaft S. Steel Identification Mark on Do. LLOYD'S 9.5.8 Material of Thrust shaft do Identification Mark on Do do  
 Material of Tunnel shafts do Identification Marks on Do. do Material of Screw shafts do Identification Marks on Do. do  
 Material of Steam Pipes Solid drawn steel Test pressure 640 lbs

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

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The materials and the workmanship are of good description throughout, and on trial in Belfast Lough, the machinery worked satisfactorily. In my opinion, it is eligible for record + L.M.C. 1-07. with notation Forced Draft & Electric Light.

This vessel's machinery is a duplicate of that fitted in the S.S. Harris.

It is submitted that this vessel is eligible for THE RECORD H.L.M.C. 1.07. F.D. ELEC. LIGHT.

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

The amount of Entry Fee. £ 3 - : When applied for. 11-1-07  
 Special .. £ 46 8 :  
 Donkey Boiler Fee £ : :  
 Travelling Expenses (if any) £ : :  
 When received. 16-1-07

TUES. JAN 15 1907  
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Committee's Minute

Assigned

MACHINERY CERTIFICATE WRITTEN.

Lmb. 1.07  
 F. D. Elec. Light



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Certificate (if required) to be sent to this office. (The Surveyors are requested not to write on or below the space for Committee's Minute.)