

## REPORT ON MACHINERY.

No. 6337

WED. JUL 31 1907

Port of *R Belfast*

Received at London Office 19

No. in Survey held at *R Belfast*  
Reg. Book. *355 Para*  
on theDate, first Survey *9 Nov 1906* Last Survey *25 June 1907*(Number of Visits *67*)Master *R Belfast* Built at *R Belfast* By whom built *Nor Kman Clark & Co Ltd* Tons { Gross *3351*  
Engines made at *R Belfast* By whom made *-* when made *-*  
Boilers made at *-* By whom made *-* when made *-*Registered Horse Power *534* Owners *Lloyd Brasileiro S.A.* Port belonging to *Rio de Janeiro*  
Nom. Horse Power as per Section 28 *534* Is Refrigerating Machinery fitted for cargo purposes *Yes* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Turner & Sons Triple Expansion* of Cylinders *6* No. of Cranks *6*  
Dia. of Cylinders *18-30-49* Length of Stroke *42* Revs. per minute *100* Dia. of Screw shaft *12.13* Material of *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 *Yes* If two  
liners are fitted, is the shaft lapped or protected between the liners *Yes* Length of stern bush *46*  
Dia. of Tunnel shaft *9.85* Dia. of Crank shaft journals *10.34* Dia. of Crank pin *11* Size of Crank webs *19.5* Dia. of thrust shaft under  
collars *11* Dia. of screw *12-6* Pitch of Screw *15-9* No. of Blades *3* State whether movable *Yes* Total surface *432 sq ft*  
No. of Feed pumps *1* Diameter of ditto *4* Stroke *21* Can one be overhauled while the other is at work *Yes*  
No. of Bilge pumps *1* Diameter of ditto *4* Stroke *21* Can one be overhauled while the other is at work *Yes*  
No. of Donkey Engines *5* Sizes of Pumps *10.5 x 8 x 21* No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room *4-3 1-3 1/2* In Holds, &c. *6-3 1/2 1-2 1/2*

No. of Bilge Injections *2* sizes *6* Connected to condenser, or to circulating pump *Yes* 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 *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 *Low 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 *25-4-07* of Stern Tube *25-4-07* Screw shaft and Propeller *23-4-07*  
Is the Screw Shaft Tunnel watertight *Sealed & ho* Is it fitted with a watertight door *Yes* worked from *Upper deck*

BOILERS, &c.—(Letter for record *S*) Manufacturers of Steel *Swanwick & Vetterli*  
Total Heating Surface of Boilers *8754 sq ft* Forced Draft fitted *Yes* No. and Description of Boilers *3-Single End Cyl*  
Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs* Date of test *15-3-07* No. of Certificate *393*  
Can each boiler be worked separately *Yes* Area of fire grate in each boiler *74 3/4 sq ft* No. and Description of Safety Valves to  
each boiler *Two-Pressure* Area of each valve *12.56 sq ft* Pressure to which they are adjusted *180 lbs* Are they fitted with easing gear *Yes*  
Smallest distance between boilers or uptakes and bunkers or woodwork *18 in* Mean dia. of boilers *16-0* Length *11-9* Material of shell plates *Steel*  
Thickness *1 1/2* Range of tensile strength *28-32 tons* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *L.B. & T.*  
long. seams *Butt Lap* Diameter of rivet holes in long. seams *1 1/2* Pitch of rivets *9 1/2* Lap of plates or width of butt straps *2 1/2*  
Per centages of strength of longitudinal joint *94.9* Working pressure of shell by rules *207 lbs* Size of manhole in shell *16 x 12*  
Size of compensating ring *1 1/2* No. and Description of Furnaces in each boiler *4-Rectangular* Material *Steel* Outside diameter *43 1/2*  
Length of plain part *10* Thickness of plates *3 1/2* Description of longitudinal joint *Weld* No. of strengthening rings *1*  
Working pressure of furnace by the rules *202 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *3 1/2* Back *39-41* Top *32* Bottom *8*  
Pitch of stays to ditto: Sides *9 1/2 x 9 1/2* Top *9 x 8 1/2* If stays are fitted with nuts or riveted heads *Nuts inside* Working pressure by rules *198 lbs*  
Material of stays *Steel* Diameter at smallest part *1 1/2* Area supported by each stay *76 1/2 sq in* Working pressure by rules *203 lbs* Material of stays *Steel*  
Material *Steel* Thickness *1 1/2* Pitch of stays *9 x 16* How are stays secured *Nuts & washers* Working pressure by rules *204 lbs* Material of Front plates at bottom *Steel*  
Diameter at smallest part *2 1/2* Area supported by each stay *304 sq in* Working pressure by rules *219 lbs* Material of Front plates at bottom *Steel*  
Thickness *1* Material of Lower back plate *Steel* Thickness *5/8* Greatest pitch of stays *13 1/2* Working pressure of plate by rules *86 lbs*  
Diameter of tubes *2 1/2* Pitch of tube *3 1/2 x 3 1/2* Material of tube plate *Steel* Thickness: Front *1 1/2* Back *1 1/2* Mean pitch of stays *1 1/4 x 1 1/4*  
Pitch across wide water spaces *13 1/2* Working pressures by rules *185 lbs* Girders to Chamber tops: Material *Steel* Depth and  
thickness of girder at centre *9 x (1 1/2 x 2)* Length as per rule *32 1/2* Distance apart *8 1/2* Number and pitch of stays in each *2-9*  
Working pressure by rules *183 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 *-*



*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:— Propeller shaft, Propeller blades, pair  
crank pin bushes, pair cross head bushes, air pump rod, bushed  
head valve seat, Centrifugal pump fan & spindle; sets H. P. M. P. Piston  
rings & slide valve spindles etc? all per to Lloyd's Rules Extra

The foregoing is a correct description,  
 FOR WORKMAN, CLARK & CO. LIMITED.  
 Manufacturer.

Dates of Survey while building	During progress of work in shops - -	1906. Oct 9, 12, 14, 22, 24, 29, 31 Nov 1, 6, 12, 15, 20, 23, 26, 29, Dec 1.
	During erection on board vessel - -	4, 6, 13, 18, 21, 1907. Jan 2, 3, 10, 11, 14 up till June 25 <sup>th</sup>
	Total No. of visits	67

Is the approved plan of main boiler forwarded herewith See plan

Dates of Examination of principal parts—Cylinders 19<sup>th</sup> October 1906 Covers 1906 Pistons 8 Rods  
Connecting rods April 1907 Crank shaft 9<sup>th</sup> October 1906 Thrust shaft 1906 Tunnel shafts To 2<sup>nd</sup> Feb = 1907 Screw shaft Propeller 4-4-07  
Stern tube 4-4-07 Steam pipes tested 16-8-07 Engine and boiler seatings 22-5-14 Engines holding down bolts 22-5-07  
Completion of pumping arrangements 2-7-07 Boilers fixed 22-5-07 Engines tried under steam 24-5-07  
Main boiler safety valves adjusted 24-5-07 Thickness of adjusting washers 12/18  
Material of Crank shaft I. Steel Identification Mark on Do. A.J.B. 27-2-07 Material of Thrust shaft I. Steel Identification Mark on Do. A.J.B. 27-2-07  
Material of Tunnel shafts I. Steel Identification Marks on Do. A.O.Y.B.S. A.J.B. 27-2-07 Material of Screw shafts Do Identification Marks on Do. A.O.Y.B.S. A.J.B. 27-2-07  
Material of Steam Pipes W. Iron Test pressure 540 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 workmanship is of good description, and on trial under steam the machinery worked satisfactorily.

In my opinion, it is eligible for record + L.M.C. 6-07. ✓

This installation is a duplicate of that fitted in the  
sister vessel "Cleara"

It is submitted that  
this vessel is eligible for  
THE RECORD. ✠ L. M. C. 6.07.

F. D.  
Elec light  
Ref track. JHC 1-8-07

The amount of Entry Fee..	£	3 : 0 :	When applied for,
Special .. .. .	£	46 : 14 :	30-7-1907
Donkey Boiler Fee .. ..	£	:	When received,
Travelling Expenses (if any)	£	:	2-8-07

*R. L. Bennett*  
N.S.  
1.8.07.  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

## Committee's Minute

FRI. 2 AUG 1907

*Assigned*

7 June 6.07

MACHINERY CERTIFICATE  
WRITTEN.

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Foundation