

# REPORT ON MACHINERY.

Port of Sunderland

Received at London Office REC'D. 25 MAR 1903

No. in Survey held at Sunderland & Blyth Date, first Survey 23rd Dec 1901 of Last Survey 30th July 1901

Reg. Book. on the SS "Lusitania" (Number of Visits 41)

Master H. Wheeler Built at Blyth By whom built Blyth S.B. Coy (1909) When built 1903

Engines made at Sunderland By whom made H.E. M.E. Coy Ltd when made 1903

Boilers made at " By whom made " " " " " when made "

Registered Horse Power Owners John Hall Jun & Co Port belonging to London

Nom. Horse Power as per Section 28 209. Is Refrigerating Machinery fitted No Is Electric Light fitted Yes

## ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 20 1/2 - 33 - 54 Length of Stroke 36 Revs. per minute 70 Dia. of Screw shaft as per rule 11.33 as fitted 11.78 Lgh. of stern bush 4-0

Dia. of Tunnel shaft as per rule 9.8 as fitted 10 Dia. of Crank shaft journals as per rule 10.34 as fitted 10 1/2 Dia. of Crank pin 10 1/2 Size of Crank webs 16 x 6 1/2 Dia. of thrust shaft under collars 10 1/2 Dia. of screw 14-3 Pitch of screw 14-3 No. of blades 4 State whether moceable No Total surface 61 f

No. of Feed pumps 2 Diameter of ditto 2 3/4 Stroke 1-9 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 3 Stroke 1-9 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps 8 x 9 x 10 7 1/4 x 3 1/2 x 5 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 4 of 3 In Holds, &c. Two holds Two 2 1/4 " one 3 "

Left holds Two 2 1/4 " one 3 " after well one 3 " Tunnel well one 2 1/4 "

No. of bilge injections 1 sizes 3 1/2 Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size Yes 3 "

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 Yes

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 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 None How are they protected ✓

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 On slips. Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes worked from Coy room top platform

## BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 3586 f Is forced draft fitted No

No. and Description of Boilers 2 Ordinary Marine Working Pressure 170 lbs Tested by hydraulic pressure to 340 lbs

Date of test 30/5/03 Can each boiler be worked separately Yes Area of fire grate in each boiler 50 f No. and Description of safety valves to each boiler 2 Spring Area of each valve 5.94 f Pressure to which they are adjusted 170 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 18 " Mean dia. of boilers 13-10 29/32 Length 10-0 Material of shell plates S

Thickness 1 3/32 Range of tensile strength 29/32 T. Are they welded or flanged No Descrip. of riveting: cir. seams D.R.L. long. seams T.R.D.B.

Diameter of ricket holes in long. seams 1/8 " Pitch of rivets 7/8 " Lap of plates or width of butt straps 16 3/4 "

Per centages of strength of longitudinal joint rivets 85.8 plate 85.7 Working pressure of shell by rules 180.6 lbs Size of manhole in shell 16 x 13 "

Size of compensating ring Flanged No. and Description of Furnaces in each boiler 3 Plain Material S Outside diameter 3-6 "

Length of plain part top 7 1/8 " bottom 7 1/8 " Thickness of plates crown 49/64 " Description of longitudinal joint Welded No. of strengthening rings 0

Working pressure of furnace by the rules 172.3 lbs Combustion chamber plates: Material S Thickness: Sides 2 1/32 " Back 1 1/16 " Top 2 1/32 " Bottom 1 3/16 "

Pitch of stays to ditto: Sides 9 3/4 x 8 1/8 " Back 10 1/4 x 9 1/8 " Top 8 7/8 x 8 1/8 " If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 177 lbs

Material of stays S Diameter at smallest part 1.79 f Area supported by each stay 93.5 f Working pressure by rules 172.2 lbs End plates in steam space:

Material S Thickness 1 1/32 " Pitch of stays 9 1/8 x 11 " How are stays secured N.W. Working pressure by rules 170.5 lbs Material of stays S

Diameter at smallest part 6.1 f Area supported by each stay 329.4 f Working pressure by rules 85.1/2 lbs Material of Front plates at bottom S

Thickness 13/16 " Material of Lower back plate S Thickness 7/8 " Greatest pitch of stays 14 1/2 x 9 1/8 " Working pressure of plate by rules 180 lbs

Diameter of tubes 3 1/4 " Pitch of tubes 4 7/16 x 4 7/16 " Material of tube plates S Thickness: Front 13/16 " Back 13/16 " Mean pitch of stays 8 7/8 "

Pitch across wide water spaces 14 1/2 " Working pressures by rules 215 lbs Girders to Chamber tops: Material S Depth and thickness of girder at centre 6 3/4 x 13 1/4 " Length as per rule 28 " Distance apart 8 7/8 " Number and pitch of Stays in each 2 of 8 7/8 "

Working pressure by rules 181 lbs Superheater or Steam chest; how connected to boiler None 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, state whether, and when, one will be sent. Is a Report also sent on the Hull of the Ship?



**DONKEY BOILER**— No. 6274 Description *Ordinary cross tube*  
 Made at *Annan* By whom made *Cochran & Co* When made *1902* Where fixed *in stockhold*  
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *6274* Fire grate area *25 1/2 sq ft* Description of safety valves *Spring loaded*  
 No. of safety valves *2* Area of each *7.07 sq ft* Pressure to which they are adjusted *85 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *7'-0"* Length *14'-0"* Material of shell plates *Steel* Thickness *15/32"* Range of tensile strength *27-32* Descrip. of riveting long. seams *double* Dia. of rivet holes *3/32"* Whether punched or drilled *welded* Pitch of rivets *2 3/4"*  
 Lap of plating *4 3/8"* Per centage of strength of joint *Rivets 74.5* Thickness of shell crown plates *9/16"* Radius of do. *7'-0"* No. of Stays to do. *8*  
 Area *3.49 sq ft* Dia. of stays *3.49"* Diameter of furnace Top *5'-0 3/8"* Bottom *5'-11 1/2"* Length of furnace *6'-4"* Thickness of furnace plates *1/16"* Description of joint *riveted* Thickness of furnace crown plates *5/8"* Stayed by *as above* Working pressure of shell by rules *88 lbs*  
 Working pressure of furnace by rules *98 lbs* Diameter of uptake *15 1/4"* Thickness of uptake plates *3/8"* Thickness of water tubes *3/8"*

**SPARE GEAR.** State the articles supplied:— *Two top & bottom end bolts & nuts set of coupling bolts, feed, air, circ. & bilge pump valves. Assorted iron, bolts & nuts. 1 main feed check valve, 1 key feed check valve. Two main bearing bolts and nuts, 1 set of each springs for piston rings, 1 safety valve spring*

The foregoing is a correct description,  
**NORTH EASTERN MARINE ENGINEERING CO. LTD.** Manufacturers.

Dates of Survey while building  
 During progress of work in shops— 1901— Dec 23. 1902— Jan 7, 10, 15, 20, 23, 29. Feb. 6, 11, 17, 20, 24, 26. Mar. 1, 6, 10, 12, 17, 21, 24, 26.  
 During erection on board vessel— Apr. 7, 9, 15, 18, 25, 28. May 1, 15, 22, 30. June 1, 9, 11, 16, 17, 20. July 1, 21, 25, 30.  
 Total No. of visits *21.* (Nov 10, 17, 18, 21, 24, 27, 30, Dec 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 1901; 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 1902)

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

Material of screw shaft *Wrought 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 *✓*  
 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 *✓*

*The boiler & machinery of this vessel have been built under Special Survey, the materials & workmanship are good & efficient, & tested according to the Rules of this Society, with satisfactory results.*  
*In our opinion this vessel is now worthy of the notation of + L.M.C. 3/03*

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 303. ELEC. LIGHT.

*Bak*

25.3.03

25.3.03

The amount of Entry Fee £ 2 : :  
 Special .. £ 30. 9 : :  
 Donkey Boiler Fee .. £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, 18.11.02  
 When received, 1.4.03

*W. Sillmore, Andrew J. Graham.*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI. 27 MAR 1903

Assigned

+ L.M.C. 303

MACHINERY CERTIFICATE WRITTEN.



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Certificate (if registered) to be sent to

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