

REPORT ON MACHINERY.

Port of NEWCASTLE-ON-TYNE

Received at London Office

SAT. 30 DEC 1893

No. in Survey held at Newcastle Date, first Survey 11th April Last Survey 21st Decr 1893
 Reg. Book. 741 on the S.S. "Buteshire" (Number of Visits) 33 Tons } Gross 5574
 Master B. Coull Built at Newcastle By whom built Hawthorn Leslie & Co When built 1893
 Engines made at Newcastle By whom made Hawthorn Leslie & Co when made 1893
 Boilers made at Do By whom made Do when made 1893
 Registered Horse Power 600 Owners Elderlie Steam Shipping Co Port belonging to Glasgow
 Nom. Horse Power as per Section 28 380

ENGINES, &c. — Description of Engines Triple expansion on three cranks No. of Cylinders 3
 Diameter of Cylinders 30" 48" 78" Length of Stroke 54" Revolutions per minute 65 Diameter of Screw shaft as per rule 14 3/4"
 Diameter of Tunnel shaft as fitted 14 1/4" Diameter of Crank shaft journals 14 3/4" Diameter of Crank pin 15" Size of Crank webs 21 1/2" x 10"
 Diameter of screw 18' 6" Pitch of screw 21' 0" No. of blades 4 State whether moveable Yes Total surface 110 sq
 No. of Feed pumps 2 Diameter of ditto 4 1/2" Stroke 27" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 27" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 2 Sizes of Pumps 12 x 10 x 12 & 6 x 4 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 4 of 3" dia. & 1 of 4" dia. In tunnel 1 of 3" dia. In Holds, &c. 9 of 3 1/2" dia.
 No. of bilge injections 1 sizes 7 1/2" Connected to condenser, or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size Yes 4" dia.
 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 the 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 New vessel Is the screw shaft tunnel watertight Yes
 Is it fitted with a watertight door Yes worked from Top platform.

BOILERS, &c. — (Letter for record S) Total Heating Surface of Boilers 4770 sq
 No. and Description of Boilers Two cylindrical single ended Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs
 Date of test 25/9/93 Can each boiler be worked separately Yes Area of fire grate in each boiler 65 sq No. and Description of safety valves to
 each boiler Two, spring loaded Area of each valve 14.19 sq Pressure to which they are adjusted 160 lbs Are they fitted
 with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork 8" Mean diameter of boilers 15' 6"
 Length 12' 6" Material of shell plates Steel Thickness 1 5/16" Description of riveting: circum. seams double lap long. seams Row's joint
 Diameter of rivet holes in long. seams 1 7/8" x 1 5/8" Pitch of rivets 9" x 6" Lap of plates or width of butt straps 15 3/4" & 27 1/2"
 Per centages of strength of longitudinal joint rivets 127 Working pressure of shell by rules 165 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring 7" x 1 3/8" No. and Description of Furnaces in each boiler Three Purvis Material Steel Outside diameter 46 1/16"
 Length of plain part top ✓ Thickness of plates crown 17" Description of longitudinal joint ✓ No. of strengthening rings ✓
 bottom ✓ bottom 32" Working pressure of furnace by the rules 163 lbs Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 5/8" Top 9/16" Bottom 3/8"
 Pitch of stays to ditto: Sides 8 1/2" x 8" Back 9 1/2" Top 8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 160 lbs
 Material of stays Steel Diameter at smallest part 1 3/8" x 1 1/2" Area supported by each stay 81 sq Working pressure by rules 160 lbs End plates in steam space:
 Material Steel Thickness 1 1/8" Pitch of stays 18 1/2" x 15" How are stays secured d.n. + w. Working pressure by rules 168 lbs Material of stays Steel
 Diameter at smallest part 2 1/8" Area supported by each stay 293 sq Working pressure by rules 215 lbs Material of Front plates at bottom Steel
 Thickness 1" Material of Lower back plate Steel Thickness 1 1/2" Greatest pitch of stays 15" Working pressure of plate by rules 168 lbs
 Diameter of tubes 3 1/2" Pitch of tubes 4 3/4" x 4 1/2" Material of tube plates Steel Thickness: Front 1" Back 3/4" Mean pitch of stays As plan
 Pitch across wide water spaces 16 1/2" Working pressures by rules 160 lbs Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 9 1/4" x 1 1/8" Length as per rule 2' 9" Distance apart 8 1/4" Number and pitch of Stays in each 3-8"
 Working pressure by rules 160 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 ✓



DONKEY BOILER—

Description *Cylindrical single ended*

Made at *Stockton* By whom made *Riley Bros* When made *1893* Where fixed *Stokehold*
 Working pressure *100 lbs* tested by hydraulic pressure to *200 lbs* No. of Certificate *727* Fire grate area *30 4* Description of safety valves *Spring*
 No. of safety valves *2* Area of each *7.07 sq* Pressure to which they are adjusted *100 lbs* If fitted with easing gear *Yes* If steam from multi boilers can enter the donkey boiler *No*
 Diameter of donkey boiler *10' 0"* Length *10' 0"* Material of shell plates *Steel* Thickness *5/8"*
 Description of riveting long seams *D. B. S. Double* Diameter of rivet holes *15/16"* Whether punched or drilled *Drilled* Pitch of rivets *3 1/16"*
 Breadth of straps *9 1/2"* Per centage of strength of joint Rivets *86.1* Plates *75.4* Thickness of shell plates *3/32"* Pitch of stays to do *17 1/2" x 13"*
 Dia. of stays *2 5/16"* Diameter of furnace *Top 33" Bottom* Length of furnace *6' 9"* Thickness of furnace plates *19" x 9/16"* Description of joint *d. b. s. single* Thickness of furnace plates *19" x 9/16"* Stayed by *1 1/4" eff. dia. stays* Working pressure of shell by rules *100 lbs*
 Working pressure of furnace by rules *132 lbs* Diameter of tubes *3 1/2"* Thickness of tube plates *27" x 9/16"* Thickness of water tubes ✓

SPARE GEAR. State the articles supplied:— *As per Rule, & in addition 1/3 of crank shaft, propeller shaft, 4 propeller blades, 1 pair connecting rod & crosshead brass, air pump bucket & rod, circulating pump rod, set of junk ring bolts, set of piston springs, 20 boiler tubes, 25 condenser tubes, & set of escape & safety valve springs*
 For the foregoing is a correct description,
R. & W. HAWTHORN, LESLIE & CO., LIMITED, Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has been constructed under special survey, the materials & workmanship all found and good & renders the vessel eligible in my opinion to have the record + LMC 12, 93 in the Register Book. The boilers are fitted with Ellis & Davis induced draft. The vessel is fitted with electric light a report on which will follow.*

Large handwritten signature in blue ink, likely the Engineer Surveyor's name.

It is submitted that this vessel is eligible for THE RECORD + LMC 12-93 - L.R.
Robt
30/12/93 -

Certificate (if required) to be sent to *Newcastle Office.*

The amount of Entry Fee.	£ 3 : -	When applied for,
Special	£ 39 : -	29.12.18.93
Donkey Boiler Fee	£ . : -	When received,
Travelling Expenses (if any) £	£ 23 : -	23.1.18.94

Thomas Field
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *TUES. 2 JAN 1894*
 Assigned *+ LMC 12, 93*

