

REPORT ON MACHINERY.

Port of *Glasgow*

WED. JAN 10 1900

Received at London Office

18

No. in Survey held at *Dumblarton*. Date, first Survey *4 October 1898* Last Survey *29 Decr 1899*
 Reg. Book. on the *Screw Steamer "Staura"* (Number of Visits *47*)
 Master *Whitchard* Built at *Dumblarton* By whom built *H. Denny & Bros.* Gross *519.7.04*
 Engines made at *Dumblarton* By whom made *Denny & Co.* when made *1899* Net *326.8.51*
 Boilers made at *Dumblarton* By whom made *Denny & Co.* when made *1899*
 Registered Horse Power *390* Owners *British India Steam Navigation Co. Ltd.* Port belonging to *Glasgow*
 Nom. Horse Power as per Section 28 *390* Is Refrigerating Machinery fitted *No* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Triple Expansion* No. of Cylinders *Three* No. of Cranks *Three*

Dia. of Cylinders *26 1/2" - 42" - 66 1/2"* Length of Stroke *51"* Revs. per minute *134* Dia. of Screw shaft *13 1/4"* Lgth. of stern bush *14"*
 Dia. of Tunnel shaft *13 1/2"* Dia. of Crank shaft journals *13 1/4"* Dia. of Crank pin *13 1/4"* Size of Crank webs *9 1/2" x 19 1/2"* Dia. of thrust shaft under collars *13 1/2"* Dia. of screw *19 1/2"* Pitch of screw *20" 0"* No. of blades *4* State whether moveable *Yes* Total surface *95 1/2"*
 No. of Feed pumps *2* Diameter of ditto *4"* Stroke *28"* Can one be overhauled while the other is at work *Yes*
 No. of Bilge pumps *2* Diameter of ditto *3 1/2"* Stroke *28"* Can one be overhauled while the other is at work *Yes*
 No. of Donkey Engines *Four* Sizes of Pumps *8" x 2 1/2" (15" x 12") (15" x 12") (15" x 12")* No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room *Four: 3 1/2" dia.* In Holds, &c. *Fore Hold: Two 3 1/2" dia. Main Hold: 2 1/2" dia.*
 Deep tank: *2-6" dia.* After Hold: *2 1/2" dia.* Aftermost Hold: *2 1/2" dia.* Tunnel well: *1-2 1/2" dia.*
 No. of bilge injections *1* sizes *Y"* Connected to condenser, or to circulating pump *C.P.* 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 cocks 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
 What pipes are carried through the bunkers *Fore Hold Suctions* How are they protected *Under strong casing*
 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 *See sketch* Is the screw shaft tunnel watertight *Yes*
 Is it fitted with a watertight door *Yes* worked from *Top platform in Engine Room*

BOILERS, &c.— (Letter for record *B*) Total Heating Surface of Boilers *5566 sq. ft.* Is forced draft fitted *Yes*

No. and Description of Boilers *Two: Cylindrical: Single ended* Working Pressure *160 lbs.* Tested by hydraulic pressure to *320 lbs.*
 Date of test *3/7/99* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *61 sq. ft.* No. and Description of safety valves to each boiler *2: Direct Spring* Area of each valve *8.95"* Pressure to which they are adjusted *165 lbs.* Are they fitted with easing gear *Yes*
 Smallest distance between boilers or uptakes and bunkers or woodwork *About 18"* Mean dia. of boilers *15.6 1/2"* Length *11.6 1/2"* Material of shell plates *Steel*
 Thickness *1 1/2"* Range of tensile strength *28-32 tons* Are they welded or flanged *No* Descrip. of riveting: cir. seams *End small* long. seams *Butt straps*
 Diameter of rivet holes in long. seams *1 5/8"* Pitch of rivets *8 1/2"* *4 1/4"* Lap of plates on width of butt straps *19"*
 Per centages of strength of longitudinal joint *94.5%* Working pressure of shell by rules *182 lbs.* Size of manhole in shell *14" x 13"*
 Size of compensating ring *30" x 25" x 1 1/2"* No. and Description of Furnaces in each boiler *3: Plain and 4: Adamson Cup* Material *Steel* Outside diameter *46 3/4"*
 Length of plain part *6' 0"* Thickness of plates *1 1/2"* Description of longitudinal joint *Weld* No. of strengthening rings *4*
 Working pressure of furnace by the rules *174 lbs.* Combustion chamber plates: Material *Steel* Thickness: Sides *7/8"* Back *7/8"* Top *7/8"* Bottom *7/8"*
 Pitch of stays to ditto: Sides *8' x 8'* Back *8' x 4 1/2'* Top *8' x 8 1/2'* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *161 lbs.*
 Material of stays *Steel* Diameter at smallest part *1 1/8"* Area supported by each stay *66 sq. in.* Working pressure by rules *149 lbs.* Material of stays *Steel*
 Thickness *1 1/2"* Pitch of stays *16' x 16'* How are stays secured *By nuts* Working pressure by rules *202 lbs.* Material of stays *Steel*
 Diameter at smallest part *2 1/2"* Area supported by each stay *256 sq. in.* Working pressure by rules *212 lbs.* Material of Front plates at bottom *Steel*
 Thickness *3/4"* Material of Lower back plate *Steel* Thickness *3/8"* Greatest pitch of stays *14"* Working pressure of plate by rules *170 lbs.*
 Diameter of tubes *2 1/2"* Pitch of tubes *3 1/2" x 3 1/4"* Material of tube plates *Steel* Thickness: Front *3/4"* Back *7/8"* Mean pitch of stays *9 1/2"*
 Pitch across wide water spaces *14"* Working pressure by rules *205 lbs.* Girders to Chamber tops: Material *Steel* Depth and thickness of girder at centre *9' x 1 1/4"* Length as per rule *33 1/2'* Distance apart *8 1/4'* Number and pitch of Stays in each *3: 8'*
 Working pressure by rules *180 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, it will be sent?

Is a Report also sent on the Hull of the Ship?

17617 gl.

DONKEY BOILER— No. *One* Description *Explosive boiler Single ended*
 Made at *Dumbarton* By whom made *Denny & Co* When made *3/4/99* Where fixed *On Deck*
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *5843* Fire grate area *35 sq ft* Description of safety valves *Direct Spring*
 No. of safety valves *2* Area of each *8.29* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*
 Dia. of donkey boiler *11' 0 5/8"* Length *9' 0"* Material of shell plates *Steel* Thickness *7/16"* Range of tensile strength *28-32 tons* Descrip. of riveting long. seams *813 Shaps Double rivet* Dia. of rivet holes *3/4"* Whether punched or drilled *Drilled* Pitch of rivets *3 1/2"*
813 Shaps Lap of plating *9"* Per centage of strength of joint *78.5* Rivets *78.5* Thickness of shell *7/16"* *7/16"* *7/16"* Radius of do. *3/4"* No. of Stays to do. *16 x 16*
 Dia. of stays *2"* Diameter of furnace *Top 39"* *Bottom* Length of furnace *6 feet* Thickness of furnace plates *1/2"* Description of joint *Weld* Thickness of *inner* *outer* plates *2"* Stayed by *1 1/4" Steel stays* *8 1/2" x 7 1/8"* *8 1/2" x 9"* Working pressure of shell by rules *83 lbs*
 Working pressure of furnace by rules *96 lbs* Diameter of *tubes* *uptake* *3"* Thickness of *tube* *uptake* plates *3/4"* Thickness of *stay* *tubes* *5/16"*

SPARE GEAR. State the articles supplied:— *Set of Ramsbottom Rimp for each piston. 3 crank shaft. 2 propeller blades. Thomson's shaft coupling. Air pump and bucket & pump. Circulating pump rod. Eccentric shaft & slide spindle. Condenser tubes. 2 sets crosshead braces. 2 Spare Rimp for piston valve. 12 coupling bolts. 2 main bearing bolts. 2 crank pin bolts. 2 crosshead bolts. 1 set feed & relief pump valves etc. etc.*
 The foregoing is a correct description,
Denny & Co Manufacturers.

Dates of Survey while building
 During progress of work in shops— 1898:— Oct. 4. 12. 19. 27. 28. Nov. 8. 17. 25. 30. Dec. 14. 20. 1899:— Jan. 20. Feb. 1. 23. Mar. 13. 16. 31.
 During erection on board vessel— Apr. 15. 24. May. 5. 12. 19. 26. Jun. 9. 16. 23. 29. Jul. 4. 28. Aug. 3. 23. Sep. 15. 22. 29. Oct. 7. Nov. 5. 13. 14. 22. 28. Dec. 6. 7. 11. 14. 17. 20. 26.
 Total No. of visits *47* Is the approved plan of main boiler forwarded herewith
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General Remarks (State quality of workmanship, opinions as to class, &c.)

The engines and boilers of this vessel have been built under special survey and the materials & workmanship are good. When completed they were examined under steam and worked satisfactorily.

*The machinery throughout is now in good and efficient condition and eligible in my opinion to have the record *L.M.C. 12, 99* marked in the Society's Register Book.*

The plans of boilers are retained for dealing with the cases of the sister ships.

*It is submitted that this vessel is eligible for THE RECORD. *L.M.C. 12.99* Elec light. FD.*

C.M.

10.1.00

10.1.00

The amount of Entry Fee. £ *3* : : : When applied for, *8th Jan 1900*
 Special £ *39* : *10* : : :
 Donkey Boiler Fee £ : : : : When received, *1st Feb 1900*
 Travelling Expenses (if any) £ : : : :
 Committee's Minute
 Assigned

FRI 12 JAN 1900

+ L.M.C. 12, 99

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