

# REPORT ON MACHINERY.

TUES. 3 JUN 1902

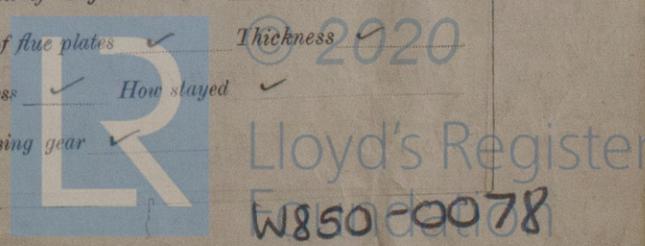
Port of Glasgow

Received at London Office

No. in Survey held at Glasgow Date, first Survey 28th Nov 1901 Last Survey 17 May 1902  
 Reg. Book. Glasgow (Number of Visits 30)  
 on the S.S. "MOPSA." Tons { Gross 884.88 Net 384.68  
 Master W. Denby Built at Port Glasgow By whom built Murdoch & Murray When built 1902  
 Engines made at Glasgow By whom made Muir, Houston & Co when made 1902  
 Boilers made at Glasgow By whom made Muir, Houston & Co when made 1902  
 Registered Horse Power \_\_\_\_\_ Owners Bennett Steamship Co. Ltd. Port belonging to Gyle  
 Nom. Horse Power as per Section 28 187 Is Refrigerating Machinery fitted No Is Electric Light fitted No

**ENGINES, &c.**—Description of Engines Triple expansion - screw No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 19.32.52 Length of Stroke 36 Revs. per minute 100 Dia. of Screw shaft 10.91 Lgth. of stern bush 45  
 Dia. of Tunnel shaft 9.65 Dia. of Crank shaft journals 10.13 Dia. of Crank pin 10.14 Size of Crank webs 6 1/4 Dia. of thrust shaft under collars 10 1/4 Dia. of screw 12.0 Pitch of screw 15.0 No. of blades 4 State whether moveable no Total surface 50  
 No. of Feed pumps 2 Diameter of ditto 3 Stroke 18 Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 3 1/2 Stroke 18 Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 3 Sizes of Pumps 6x4 1/4 x 6 - 4x2 1/2 x 4 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Two 2 dia + one 2 1/4 dia. In Holds, &c. Two in forward hold 2 dia + one 2 1/4 dia.  
 No. of bilge injections 1 sizes 5 1/2 Connected to condenser, or to circulating pump pump Is a separate donkey suction fitted in Engine room & size yes 2 1/4  
 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 cocks & valves  
 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 yes  
 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 before launch 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 3044 sq. ft Is forced draft fitted no  
 No. and Description of Boilers 2 Single Ended Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs  
 Date of test 19/4/02 Can each boiler be worked separately yes Area of fire grate in each boiler 41 sq. ft No. and Description of safety valves to each boiler 2 Patent Spring Area of each valve 3.98 Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 24 Mean dia. of boilers 13.3 Length 11.0 Material of shell plates steel  
 Thickness 1 1/4 Range of tensile strength 28 to 32 Are they welded or flanged no Descrip. of riveting: cir. seams double long. seams treble  
 Diameter of rivet holes in long. seams 15/16 Pitch of rivets 9 Lap of plates or width of butt straps 20/8  
 Per centages of strength of longitudinal joint rivets 89.5 Working pressure of shell by rules 210 lbs Size of manhole in shell 12 x 16  
 Size of compensating ring McNeil's No. and Description of Furnaces in each boiler Florrugated Material steel Outside diameter 4.13 1/4  
 Length of plain part top ✓ bottom ✓ Thickness of plates crown 5/8 Description of longitudinal joint welded No. of strengthening rings ✓  
 Working pressure of furnace by the rules 202 lbs Combustion chamber plates: Material steel Thickness: Sides 1 1/16 Back 19/32 Top 1 1/16 Bottom 7/8  
 Pitch of stays to ditto: Sides 9 x 9 Back 8 x 8 Top 8 x 9 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 190 lbs  
 Material of stays steel Diameter at smallest part 1.44 Area supported by each stay 64 Working pressure by rules 180 lb End plates in steam space: Material steel Thickness 1 3/32 Pitch of stays 16 x 15 How are stays secured nuts Working pressure by rules 226 lbs Material of stays steel  
 Diameter at smallest part 5.34 Area supported by each stay 240 Working pressure by rules 226 lbs Material of Front plates at bottom steel  
 Thickness 7/8 Material of Lower back plate steel Thickness 13/16 Greatest pitch of stays 12 1/2 x 8 Working pressure of plate by rules 207 lbs  
 Diameter of tubes 3 1/2 Pitch of tubes 4 3/4 x 4 1/4 Material of tube plates steel Thickness: Front 7/8 + 1/8 doubling Back 29/32 Mean pitch of stays 9 1/2  
 Pitch across wide water spaces 14 Working pressures by rules 337 lbs Girders to Chamber tops: Material iron Depth and thickness of girder at centre 9 x 2 - 1 1/4 Length as per rule 3.3 Distance apart 8 Number and pitch of Stays in each 3-9  
 Working pressure by rules 316 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 2020  
 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 ✓



and unless, one will be sent?  
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**DONKEY BOILER**— No. *one* Description *Horizontal tubular, dry back.*  
 Made at *Glasgow* By whom made *Muir Houston* When made *1902* Where fixed *in stokehold*  
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *6262* Fire grate area *12 3/4* Description of safety valves *hake spring*  
 No. of safety valves *2* Area of each *3.14* Pressure to which they are adjusted *82 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 *5.0* Material of shell plates *steel* Thickness *1/2* Range of tensile strength *27 to 32* Descrip. of riveting long. seams *treble (lap)* Dia. of rivet holes *15/16* Whether punched or drilled *drilled* Pitch of rivets *3/4*  
 Lap of plating *7* Per centage of strength of joint *71.1* Rivets *108* Thickness of shell *end* plates *1/16* Radius of do. *Rich* No. of Stays to do. *1 1/2 x 13*  
 Area *2.03* Dia. of stays. *3.03* Diameter of furnace *Top 3.1 Bottom* Length of furnace *5.1* Thickness of furnace plates *1/2* Description of joint *welded* Thickness of furnace crown plates *1/2* Stayed by *1/2* Working pressure of shell by rules *98 lbs*  
 Working pressure of furnace by rules *119 lbs* Diameter of *tube* uptake *3* Thickness of *tube* uptake plates *1/16* Thickness of *stay* tubes *5/16*

**SPARE GEAR.** State the articles supplied:— *Two top end & two bottom end connecting rod bolts, two main bearing bolts, one set coupling bolts, one set of feed & ludge pump valves. &c.*

The foregoing is a correct description,

*Muir & Houston, Limited* Manufacturer.

Dates of Survey while building  
 During progress of work in shops— *1901: Nov 28, Dec 10, 20, 1902: Jan 7, 14, 20, 23, 30, Feb 11, 18, 24, 26, 27, Mar 6, 10, 13, 18,*  
 During erection on board vessel— *24, 25, 27, Apr 7, 10, 19, 28, May 2, 8, 10, 14, 15, 17.*  
 Total No. of visits *30.* Is the approved plan of main boiler forwarded herewith *yes.*  
 " " " donkey " " " *yes.*

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

Material of screw shaft *iron* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *no*  
 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 *no*  
 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 *no.*

The machinery of this vessel has been constructed under Special Survey, the material & workmanship are of good quality, it has been securely fitted on board & tried under steam. In my opinion it is eligible to be classed in the Register Book with the record of **L.M.C. 5.02**

It is submitted that this vessel is eligible for THE RECORD - L.M.C. 5.02

*J.W. Dimmock*  
 4.6.02  
 5.6.02

The amount of Entry Fee... £ 2  
 Special... £ 28  
 Donkey Boiler Fee... £  
 Travelling Expenses (if any) £

*J.W. Dimmock*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *Glasgow, 2-JUN 1902*

Assigned *+ L.M.C. 5.02*  
*When for hand*

MACHINERY CERTIFICATE  
 WRITTEN, 14.6.02



Certificate (if required) to be sent to Glasgow.

The Surveyors are requested to write on or below the space for Committee's Minute.