

# REPORT ON MACHINERY.

(Received at London Office)

No. 5805

No. in Survey held at Glasgow  
Reg. Book.

Date, first Survey December 1881 Last Survey August 14 1882

on the Screw Steamer "Borghese" late "Galatea"

Tons 1331

Master D. Pearson

Built at Sunderland

When built 1870-11 m

Engines made at Glasgow

By whom made James Hardie & Co. when made 1882

Boilers made at "

By whom made " when made 1882

Registered Horse Power 200

Owners Raeburn & Co. Ltd

Port belonging to Glasgow

## ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting  
 Diameter of Cylinders 36" & 64" Length of Stroke 42" No. of Rev. per minute 67 Point of Cut off, High Pressure .6 Low Pressure .6  
 Diameter of Screw shaft 1 1/2" Diameter of Tunnel shaft 1 1/4" Diameter of Crank shaft journals 1 1/2" Diameter of Crank pin 1 1/2" size of Crank webs 6 3/4" x 1 1/4"  
 Diameter of screw 1 5/8" Pitch of screw 1 1/2" No. of blades four state whether moveable Yes total surface 64 1/2"  
 No. of Feed pumps two diameter of ditto 4" Stroke 21" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps two diameter of ditto 4" Stroke 21" Can one be overhauled while the other is at work Yes  
 Where do they pump from All Compartments  
 No. of Donkey Engines one Size of Pumps 5 x 6" stroke Where do they pump from Sea Bilge & Holdwell

Are all the bilge suction pipes fitted with roses Yes Are the roses always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes  
 No. of bilge injections One and sizes 6" Are they connected to condenser, or to circulating pump Circulating  
 How are the pumps worked By Levers  
 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 Main Steam Pipes How are they protected By iron casing  
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times Yes  
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges Yes  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock July 10<sup>th</sup> 1882  
 Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Upper Deck

## BOILERS, &c.—

Number of Boilers Two Description Round Horizontal  
 Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test 31.5.82  
 Description of superheating apparatus or steam chest Round vertical dome  
 Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately none  
 No. of square feet of fire grate surface in each boiler 60 1/2 Description of safety valves Direct Spring (Alec McCallum)  
 No. to each boiler Two area of each valve 16.8" Are they fitted with casing gear Yes  
 No. of safety valves to superheater — area of each valve — are they fitted with casing gear —  
 Smallest distance between boilers and bunkers or woodwork 9"  
 Diameter of boilers 11.9" Length of boilers 5.7 1/8" description of riveting of shell long. seams Double riveted circum. seams Double riveted  
 Thickness of shell plates 3/16" diameter of rivet holes 1 3/16" whether punched or drilled Drilled pitch of rivets 5 9/16"  
 Lap of plating 1/2" per centage of strength of longitudinal joint 48% working pressure of shell by rules 81 lbs  
 Size of manholes in shell 16" x 17" size of compensating rings Angle ironing  
 No. of Furnaces in each boiler four outside diameter 3.4" length, top 6.6" bottom through Surfaces  
 Thickness of plates 3/16" description of joint welded in two lengths if rings are fitted — greatest length between rings —  
 Working pressure of furnace by the rules 136 lbs @ 3.4" length  
 Combustion chamber plating, thickness, sides 3/16" back — top 3/16"  
 Pitch of stays to ditto sides 8 1/4" x 8 1/4" back — top 8 1/4" x 8 1/4"  
 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 79 lbs  
 Diameter of stays at smallest part 1 1/4" working pressure of ditto by rules 105 lbs  
 End plates in steam space, thickness 3/16" & 1/16" double pitch of stays to ditto 18" x 18" how stays are secured By double nuts  
 Working pressure by rules 97 lbs diameter of stays at smallest part 2 1/2" working pressure by rules 97 lbs  
 End plates at bottom, thickness 1/16" Back plates, thickness — greatest pitch of stays — working pressure by rules —

5805. eg.

Diameter of tubes  $3\frac{1}{4}$ " pitch of tubes  $4\frac{1}{2}$ " thickness of tube plates, front  $\frac{11}{16}$ " back  $\frac{11}{16}$ "  
How stayed *by tubes* pitch of stays  $13\frac{1}{2} \times 13\frac{1}{2}$ " width of water spaces  $6$ "  
Diameter of ~~superheater~~ steam chest  $3'0"$  length  $3'8"$   
Thickness of plates  $\frac{15}{32}$ " description of longitudinal joint *double riveted* diameter of rivet holes  $\frac{13}{16}$ " pitch of rivets  $3\frac{1}{4}$ "  
Working pressure of shell by rules  Diameter of flue *none* thickness of plates

If stiffened with rings  distance between rings  Working pressure by rules   
End plates ~~of superheater~~ steam chest; thickness  $\frac{9}{16}$ " How stayed   
~~Superheater~~ steam chest; how connected to boiler *by flange double riveted*

DONKEY BOILER— Description *Round Horizontal (Old Boiler)*  
Made at *not ascertained* By whom made *valves, loaded to B* when made   
Where fixed *in upper deck* working pressure  $2\frac{1}{2}$  lbs Tested by hydraulic pressure to  $52$  lbs No. of Certificate   
Fire grate area  $16\frac{1}{2}$  sq ft Description of safety valves *Dead weight* No. of safety valves *one* area of each  $9.62$ "  
If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*  
Diameter of donkey boiler  $6'2"$  length  $9'0"$  description of riveting *Double riveted*  
thickness of shell plates  $\frac{9}{16}$ " diameter of rivet holes  whether punched or drilled   
pitch of rivets  $2$ " lap of plating  per centage of strength of joint   
thickness of crown plates  stayed by   
Diameter of furnace, *up*  $3\frac{1}{2}$ " bottom  length of furnace  $6'9"$   
thickness of plates *about*  $\frac{7}{16}$ " description of joint *lap single riveted*  
thickness of furnace crown plates  stayed by   
Working pressure of shell by rules  working pressure of furnace by rules   
diameter of uptake  thickness of plates  thickness of water tubes

The foregoing is a correct description,  
Manufacturer.

*James Howden & Co*

General Remarks (State quality of workmanship, opinions as to class, &c. *The Old Engines & Boilers have been taken out & replaced by new, which are of good workmanship. The Engine & Boiler Leaking repaired & renewed where necessary, and all sea cocks & valves moved from the flat of bottom, to the upper turn of the bilge. Funnel Shifting lined up & bearings overhauled. Stern bush fitted with new wood on bottom side. Main propeller fitted*

*Donkey Boiler repaired by renewing a number of screw stays, and a large patch at the bottom of back, safety valve overhauled & examined pipes & other connections repainted & made good*

*These Engines & Boilers, together with the above mentioned repairs have been satisfactorily completed by Messrs James Howden & Coy and are now in good order and safe working condition and eligible in my opinion to be noted in the Register, Book  $\times$  Lloyd's. M. C. 8. 82*

The amount of Entry Fee .. £ 1: 10: 0 received by me,  
Special .. £ 30: 0: 0  
Certificate (if required) .. £ 5: 0: 0 *3/18/82*  
To be sent as per margin. *£ 31: 15: 0*

(Travelling Expenses, if any, £ .. .. .)  
Committee's Minute

*It is submitted that this vessel is eligible to have the notification of 1843 and 1848 recorded Jm 24/1/82*  
James Mollison  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping  
Clyde District  
Lloyd's Register  
Foundation