

# REPORT ON MACHINERY.

No. 5342

(Received in London Office 11/4/1881)

No. in Survey held at Glasgow Date, first Survey 24<sup>th</sup> May, 1880 Last Survey 8<sup>th</sup> April 1881  
 Reg. Book. on the S. S. "Glenarvon" Tons 1935.65  
2985.35

Master Capt. Taylor Built at Glasgow When built 1880 & 81

Engines made at Glasgow By whom made Lauden & Glasgow Co. when made 1880

Boilers made at " By whom made " when made 1880

Registered Horse Power 530 Owners McGregor, Gair & Co. Port belonging to Glasgow

## ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting  
 Diameter of Cylinders 48 & 88 Length of Stroke 4.6 No. of Rev. per minute 56 Point of Cut off, High Pressure 4.3 Low Pressure 4.0  
 Diameter of Screw shaft 16 1/4 Diameter of Tunnel shaft 14 7/8 Diameter of Crank shaft journals 16 1/4 Diameter of Crank pins 16 1/4 size of Crank webs 18 1/2 x 12  
 Diameter of screw 18.0 Pitch of screw 25.6 No. of blades Four state whether moveable yes total surface 88.0 feet  
 No. of Feed pumps Two diameter of ditto 5 1/2 Stroke 3.0 Can one be overhauled while the other is at work yes  
 No. of Bilge pumps Two diameter of ditto 5 1/2 Stroke 3.0 Can one be overhauled while the other is at work yes  
 Where do they pump from Engine Room, Hatchhole & Cargo Holders  
 No. of Donkey Engines Two Size of Pumps 5 x 10 Stroke Where do they pump from Sea, Hatchhole & Bilges  
A Centrifugal pump draws from Ballast Tanks & Bilges  
 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 to Circulating Pump  
 How are the pumps worked by Levers Connected to Crosshead  
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks Valves & Cocks  
 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 below  
 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 Bilge & Ballast Tank pipe How are they protected by wood Casement  
 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 on Ship before Ship was launched  
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Mid platform

## BOILERS, &c.—

Number of Boilers Three Description Round Horizontal Multitubular  
 Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs per inch Date of test 5<sup>th</sup> November 1880  
 Description of superheating apparatus or steam chest Round Horizontal Receiver  
 Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately no Superheater  
 No. of square feet of fire grate surface in each boiler 94.6 sq feet Description of safety valves Direct spring  
 No. to each boiler Two area of each valve 23.76 sq" Are they fitted with easing gear yes  
 No. of safety valves to superheater — area of each valve — are they fitted with easing gear —  
 Smallest distance between boilers and bunkers or woodwork 3 feet from Deck  
 Diameter of boilers 12.0 Length of boilers 18.0 description of riveting of shell long. seams Welded circum. seams Double  
 Thickness of shell plates 3/32 diameter of rivet holes 1 1/8 in. diam whether punched or drilled punched pitch of rivets 4 1/4  
 Lap of plating 5" per centage of strength of longitudinal joint 70 working pressure of shell by rules 89 lbs  
 Size of manholes in shell 16 x 12 size of compensating rings 4 x 3 x 1/2  
 No. of Furnaces in each boiler 6 outside diameter 2.11 1/2 length, top 6.9 bottom through  
 Thickness of plates 1 1/32 description of joint Double butt strap if rings are fitted half rings greatest length between rings 4.9 between half rings  
 Working pressure of furnace by the rules 105 lbs  
 Combustion chamber plating, thickness, sides 7/16 back no back top 1/2  
 Pitch of stays to ditto sides 7 3/4 x 8 1/2 back — top 9 x 9  
 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 81 lbs for sides. 94 lbs for top  
 Diameter of stays at smallest part 1 1/4 working pressure of ditto by rules 112 lbs  
 End plates in steam space, thickness 3/4 pitch of stays to ditto 16 x 13 1/2 how stays are secured Double nuts & washers  
 Working pressure by rules 78.7 lbs diameter of stays at smallest part 2 1/8 working pressure by rules 98 lbs  
 Front plates at bottom, thickness 5/8 Steel Back plates, thickness no back greatest pitch of stays — working pressure by rules —



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Diameter of tubes  $3\frac{1}{2}$  pitch of tubes  $4\frac{1}{2}$  thickness of tube plates, front  $\frac{1}{16}$  back  $\frac{1}{8}$   
How stayed Stay Tubes pitch of stays  $9\frac{1}{2} \times 14\frac{1}{4}$  width of water spaces 6  
Diameter of Superheater or Steam chest 3.6 length 18.0  
Thickness of plates  $\frac{1}{16}$  description of longitudinal joint Lap double diameter of rivet holes  $\frac{1}{16}$  pitch of rivets  $3\frac{1}{8}$   
Working pressure of shell by rules 188 lbs Diameter of flue — thickness of plates —  
If stiffened with rings — distance between rings — Working pressure by rules —  
End plates of superheater, or steam chest; thickness  $\frac{5}{8}$  How stayed by a 2" round bar stay  
Superheater or steam chest; how connected to boiler by neck piece

### DONKEY BOILER—

Description Multitubular flat sided  
Made at Glasgow By whom made Lindsay & Macgregor Co. when made 1880  
Where fixed on Main Deck working pressure 50 lbs Tested by hydraulic pressure to 100 lbs per sq. in. No. of Certificate 388  
Fire grate area 21.0 feet Description of safety valves Direct Spring No. of safety valves Two area of each 7.0  
If fitted with easing gear yes If steam from main boilers can enter the donkey boiler no  
Diameter of donkey boiler 4.8 length 9.6 height 9.5 description of riveting double & single  
thickness of shell plates  $\frac{7}{16}$  diameter of rivet holes  $\frac{13}{16}$  whether punched or drilled punched  
pitch of rivets  $2\frac{5}{8} & 2$  lap of plating  $4\frac{1}{2} & 3$  per centage of strength of joint 69  
thickness of crown plates — stayed by —  
Diameter of furnace, top 3.6 bottom — length of furnace 6.9  
thickness of plates  $\frac{7}{16}$  description of joint double butt Strap  
thickness of furnace crown plates — stayed by —  
Working pressure of shell by rules 84 lbs working pressure of furnace by rules 60 lbs  
diameter of uptake — thickness of plates — thickness of water tubes —

The foregoing is a correct description,

THE LONDON & LANCASHIRE  
MANUFACTURER.  
for J. H. Hughes

General Remarks (State quality of workmanship, opinions as to class, &c. No Engines & Boilers have been  
carefully inspected by me during construction the workmanship is of  
good quality & the Machinery & Boilers are now in good order & safe working  
condition & are in my opinion eligible to be noted in the Register Book  
+ LLOYD'S M.C. 4.81.

This submission that this  
vessel is eligible to have  
the notation of Lloyd's M.C.  
recorded in the Register Book  
Jm 11/4/81

The amount of Entry Fee £ 3 : : : received by me,  
Special .. £ 46 : 10 : : viz £50.0.0  
Certificate (if required) .. £ : : : 9th April 1881  
To be sent as per margin.  
(Travelling Expenses, if any, £ 0.10.6)

Committee's Minute

Tuesday April 12th 1881.

Andrew L. Ham  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.  
Glasgow District