

# REPORT ON MACHINERY.

Ser. 12756

No. 650 (N.W.C.)

(Received in London Office 22/12/87)

No. in Survey held at Newcastle & Sunderland Date, first Survey 27<sup>th</sup> June Last Survey 13<sup>th</sup> Dec 1881  
 Reg. Book. on the Steam Steamer "Clan Monroe" Tons 2194.24  
1436.91  
 Master Robbitt Built at Sunderland When built 1881  
 Engines made at Newcastle By whom made R. W. Hawthorn when made 1881  
 Boilers made at Do By whom made Do when made 1881  
 Registered Horse Power 300 Owners Barry & Irvine & Co Port belonging to Glasgow

Ser. 1312/87  
Report recd 29/12/87

## ENGINES, &c.—

Description of Engines Inverted compound surface condensing  
 Diameter of Cylinders 36 & 68 Length of Stroke 45 No. of Rev. per minute 60 Point of Cut off, High Pressure half Low Pressure half  
 Diameter of Screw shaft 12 1/2 Diameter of Tunnel shaft 12 Diameter of Crank shaft journals 12 1/2 Diameter of Crank pin 12 1/2 size of Crank webs 15 x 8  
 Diameter of screw 16 - 4 Pitch of screw 14 to 16 ft No. of blades 4 state whether moveable yes total surface 68 Sq ft  
 No. of Feed pumps 2 diameter of ditto 3 3/4 Stroke 22 1/2 Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 diameter of ditto 3 3/4 Stroke 22 1/2 Can one be overhauled while the other is at work yes  
 Where do they pump from Engine space, 14, 15, or Main hold (3), aft hold (1), tunnels  
 No. of Donkey Engines Two Size of Pumps 8" x 14 & 3 1/2 x 8 Where do they pump from Engine space  
Main hold, aft hold well, Main tanks, aft tanks & Sea  
 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 1 and sizes 4 1/2 Are they connected to condenser, or to circulating pump no  
 How are the pumps worked Lower over condenser  
 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 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 — How are they protected —  
 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 now  
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from top platform of engine room

## BOILERS, &c.—

Number of Boilers Two Description Steel, Cylindrical return tubes  
 Working Pressure 90 lb Tested by hydraulic pressure to 180 lb Date of test 13<sup>th</sup> September 1881  
 Description of superheating apparatus or steam chest Horizontal cylinder on each boiler connects  
 Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately —  
 No. of square feet of fire grate surface in each boiler 53.5 Sq ft Description of safety valves Spring  
 No. to each boiler 2 area of each valve 14.5 sq in 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 18 inches  
 Diameter of boilers 14 - 4 1/2 length of boilers 10 - 6 description of riveting of shell long. seams Triple Lap circum. seams Double Lap  
 Thickness of shell plates 1/4 - 3/8 diameter of rivet holes 1 1/4 whether punched or drilled Drilled pitch of rivets 5 inches  
 Lap of plating 10 1/2 per centage of strength of longitudinal joint 75% working pressure of shell by rules 90 lb  
 Size of manholes in shell 16 x 12 size of compensating rings 6 x 1  
 No. of Furnaces in each boiler 3 outside diameter 4 1/2 length, top 7 - 3 bottom 9 - 10  
 Thickness of plates 1/2 & 5/8 description of joint Single strap if rings are fitted no greatest length between rings —  
 Working pressure of furnace by the rules 90 lb  
 Combustion chamber plating, thickness, sides 1/2 back 1/2 top 1/2  
 Pitch of stays to ditto sides 9 3/10 x 8 1/2 back 9 3/10 x 9 3/10 top Curved  
 If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 90 lb  
 Diameter of stays at smallest part 1 3/16 working pressure of ditto by rules 93 lb  
 End plates in steam space, thickness 1/2 pitch of stays to ditto 16 x 16 how stays are secured Nuts & Rivets  
 Working pressure by rules 90 lb diameter of stays at smallest part 2 1/8 diam working pressure by rules 102 lb  
 Front plates at bottom, thickness 5/8 Back plates, thickness 5/8 greatest pitch of stays 11 1/2 working pressure by rules 90 lb

Results of steel tests now forwarded

SLD941-0035

Diameter of tubes  $3\frac{1}{2}$ " pitch of tubes  $4\frac{3}{4}$ " thickness of tube plates, front  $\frac{3}{4}$ " back  $\frac{1}{16}$ "  
 How stayed *Tubes* pitch of stays  $14\frac{1}{4}$ " width of water spaces  $12$ "  
 Diameter of Superheater or Steam chest  $21-6$  length  $7-0$   
 Thickness of plates  $\frac{3}{8}$ " description of longitudinal joint *Double Lap* diameter of rivet holes  $\frac{3}{4}$ " pitch of rivets  $2\frac{1}{2}$ "  
 Working pressure of shell by rules  $97\frac{1}{2}$  Diameter of flue  $\text{---}$  thickness of plates  $\text{---}$   
 If stiffened with rings  $\text{---}$  distance between rings  $\text{---}$  Working pressure by rules  $\text{---}$   
 End plates of ~~superheater~~ or steam chest; thickness  $\frac{5}{8}$ " How stayed *Disked to 4 ft radius*  $\frac{5}{8} \times 13784 = 9$   
 Superheater or steam chest; how connected to boiler *contracted neck*  $96$

**DONKEY BOILER**— Description *Cochran's Patent*  
 Made at *Bateshead* By whom made *Clark Chapman & Co* when made *Tested October 1881*  
 Where fixed *Stokehold* working pressure  $80\frac{1}{2}$  Tested by hydraulic pressure to  $160\frac{1}{2}$  No. of Certificate  $707$   
 Fire grate area  $25\frac{1}{2}$  sq ft. Description of safety valves *Spring* No. of safety valves  $2$  area of each  $6\frac{1}{2}$ "  $2\frac{1}{2}$ "  
 If fitted with easing gear *gas* If steam from main boilers can enter the donkey boiler *no*  
 Diameter of donkey boiler  $6-3$  length  $13-0$  description of riveting *Double Lap*  
 thickness of shell plates  $\frac{9}{16}$ " diameter of rivet holes  $\frac{15}{16}$ " whether punched or drilled *punched*  
 pitch of rivets  $3\frac{3}{8}$  lap of plating  $2\frac{1}{2}$  per centage of strength of joint  $72\frac{1}{2}$   
 thickness of crown plates  $\frac{5}{8}$ " stayed by *5 Burst Stays*  $12" \times \frac{1}{2}"$   
 Diameter of furnace, top  $27$  inches bottom  $67$ " diam length of furnace  $\text{---}$   
 thickness of plates  $\frac{5}{8}$ " description of joint *Single Lap*  
 thickness of furnace crown plates  $\frac{5}{8}$ " stayed by  $\text{---}$   
 Working pressure of shell by rules  $89\frac{1}{2}$  working pressure of furnace by rules  $80\frac{1}{2}$   
 diameter of uptake  $\text{---}$  thickness of plates  $\text{---}$  thickness of water tubes  $\text{---}$

The foregoing is a correct description,  
*R. W. Hawthorn* Manufacturers of main Engines & Boilers.

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

The machinery of this vessel has been specially surveyed during construction. The materials and workmanship are sound and satisfactory and eligible in my opinion to have the notation  
 ✦ Lloyd's No. 12-81 in the Society's Register Books,

*It is submitted that this vessel is eligible to have the notation ✦ Lloyd's No. 12-81 in the Society's Register Books.*  
*W. M. C. 11/27/81*

The amount of Entry Fee £ 3 : 0 : 0 received by me,  
 Special *Dev. 11/27/81* .. £ 35 : 0 : 0 and remitted to Shields  
 Certificate (if required) .. £ : : *14 Dec 1881*  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ 2 : 2 : 0)

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

Committee's Minute Friday, December, 23rd, 1881.

*R. W. Hawthorn*

*Lloyd's Register Foundation*