

# 27199 REPORT ON MACHINERY.

No. 495 (Received in London Office 17/10/80)  
 No. in Survey held at Sunderland Date, first Survey 31<sup>st</sup> Oct 1879 Last Survey June 4 1880  
 Reg. Book. 234 on the S. S. Hector Tons 1534  
 Master J. Lay Built at Sunderland When built 1863  
 Engines made at Sunderland By whom made J. Dickison when made 1879  
 Boilers made at do By whom made do when made "  
 Registered Horse Power 200 Owners E. J. Gourley Port belonging to Sunderland

## ENGINES, &c.—

Description of Engines Inverted Compound Surface Condensing  
 Diameter of Cylinders 33" x 62 Length of Stroke 42 No. of Rev. per minute 58 Point of Cut off, High Pressure 1/2 Low Pressure 1/2  
 Diameter of Screw shaft 1 1/4 Diameter of Tunnel shaft 10 3/4 Diameter of Crank shaft journals 10 3/4 Diameter of Crank pin 10 3/4 size of Crank webs 1 1/2 x 4 1/2  
 Diameter of screw 1 1/4" 8 Pitch of screw 16" 0 No. of blades 41 state whether moveable Not total surface 66 sq' ft.  
 No. of Feed pumps 2 diameter of ditto 4 1/4 Stroke 22 1/2" Can one be overhauled while the other is at work No  
 No. of Bilge pumps 2 diameter of ditto 4 1/4 Stroke 22 1/2" Can one be overhauled while the other is at work No  
 Where do they pump from Aft Bilge Pump, sea tanks & Bilges of all Comp<sup>ts</sup> — Forward one Engine Room Bilges only  
 No. of Donkey Engines Two Size of Pumps 8" x 10" & 5" x 8" Where do they pump from Ballast pump from sea tank  
Holds & Bilges of Engine Room. Feed tank from Aft Peak, sea & through Condenser  
 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 size 6" Are they connected to condenser, or to circulating pump Circulating  
 How are the pumps worked by levers attached to crossheads of both engines  
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Stop 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 Main Tank & Hold suction pipe How are they protected Wood casing  
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times Yes except in Main Tank & Hold  
 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 Nov<sup>r</sup> 26<sup>th</sup> 1879  
 Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Top Engine Room Platform

## BOILERS, &c.—

Number of Boilers Two Description Cylindrical & Multitubular  
 Working Pressure 45 lbs per sq in Tested by hydraulic pressure to 150 lbs per sq in Date of test See Mr Stevens report Feb 1880  
 Description of superheating apparatus or steam chest No superheater or steam chest  
 Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately Yes  
 No. of square feet of fire grate surface in each boiler 44 sq' ft. Description of safety valves Spring Valves  
 No. to each boiler 2 area of each valve 1104 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 2' 6"  
 Diameter of boilers 14' 9" Length of boilers 10' 6" description of riveting of shell long. seams Double Lap circum. seams Double Lap  
 Thickness of shell plates 1 1/2" diameter of rivet holes 1 1/4" whether punched or drilled drilled pitch of rivets 4 5/8"  
 Lap of plating 11" per centage of strength of longitudinal joint Plate 1/3 Rivets 1/2 working pressure of shell by rules 49 lbs  
 Size of manholes in shell 16" x 11" size of compensating rings 7" x 1"  
 No. of Furnaces in each boiler 3 outside diameter 3' 1" length, top 7' 0" bottom 9' 9"  
 Thickness of plates Top 1/2" shell 9/16" description of joint Lap d. r. if rings are fitted No greatest length between rings \_\_\_\_\_  
 Working pressure of furnace by the rules 86 lbs per sq in  
 Combustion chamber plating, thickness, sides 1/2" back 1/2" top 1/2"  
 Pitch of stays to ditto sides 9" x 9" back 9" x 9" top Circular 2' 6" Radius  
 If stays are fitted with nuts or riveted heads Nuts & Riveted heads working pressure of plating by rules 49 lbs per sq in  
 Diameter of stays at smallest part 1 1/8" working pressure of ditto by rules 48 lbs per sq in  
 End plates in steam space, thickness 3/4" pitch of stays to ditto 15" x 15" how stays are secured Double Nuts  
 Working pressure by rules 89 lbs diameter of stays at smallest part 2" working pressure by rules 85 lbs  
 Front plates at bottom, thickness 3/4" Back plates, thickness 3/4" greatest pitch of stays 12" x 9" working pressure by rules 100 lbs

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Diameter of tubes  $3\frac{3}{4}$ " Ext. pitch of tubes  $5" \times 5"$  thickness of tube plates, front  $\frac{3}{4}$ " back  $\frac{3}{4}$ "  
 How stayed *Stay Tubes* pitch of stays  $15" \times 10"$  width of water spaces  $1\frac{1}{2}$ " between tubes  
 Diameter of Superheater or Steam chest \_\_\_\_\_ length \_\_\_\_\_  
 Thickness of plates \_\_\_\_\_ description of longitudinal joint \_\_\_\_\_ diameter of rivet holes \_\_\_\_\_ pitch of rivets \_\_\_\_\_  
 Working pressure of shell by rules \_\_\_\_\_ 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 \_\_\_\_\_ How stayed \_\_\_\_\_  
 Superheater or steam chest; how connected to boiler \_\_\_\_\_

**DONKEY BOILER**— Description *Circular Vertical*  
 Made at *Newcastle* By whom made *C. C. & Gurney* when made *Tested 7. 11. 79*  
 Where fixed *In Steamer* working pressure *50 lbs per sq. in.* Tested by hydraulic pressure to *130 lbs.* No. of Certificate *7<sup>th</sup> May 11*  
 Fire grate area *22 sq. ft.* Description of safety valves *Direct Loaded* No. of safety valves *one* area of each *11.04 sq. ft.*  
 If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*  
 Diameter of donkey boiler *16" 0* length *15" 6* description of riveting *Long. d. Lap Cir Single Lap*  
 thickness of shell plates *1/2"* diameter of rivet holes *7/8"* whether punched or drilled *punched*  
 pitch of rivets *3 1/4"* lap of plating *Long 4" Cir 2 1/4"* per centage of strength of joint *73 of 100*  
 thickness of crown plates *9/16"* stayed by *Fished to 5' 0 Radius & 6 stays with doub nuts 1 1/2 dia off*  
 Diameter of furnace, top *4' 10* bottom *5' 4 1/2* length of furnace *6' 4 1/2*  
 thickness of plates *9/16"* description of joint *Lap Single Riveted 15/16" rivets x 2 3/16" pitch*  
 thickness of furnace crown plates *9/16"* stayed by *Fished to 5' 0 Radius & 6 stays + doub nuts 1 1/2 dia off*  
 Working pressure of shell by rules *48 lbs* working pressure of furnace by rules *75 lbs.*  
 diameter of uptake *1 1/4" 10 1/2* thickness of plates *3/8"* thickness of water tubes *3/8"*

The foregoing is a correct description,  
 Manufacturer.

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The whole of the old Engines*  
*and Boilers which were removed from the wreck of the S.S.*  
*'Robert Dickson' fitted on board. They have been tried under*  
*steam and found satisfactory.*  
*The above machinery is in good order and safe working*  
*condition and in our opinion eligible for the certification*  
*Lloyd's M.C. in the Register Book.*

*Vector*  
*It is submitted that the*  
*vessel is eligible to*  
*have the certificate*  
*N.B. 4379 & Lloyd's*  
*Inc. 6. 80 recorded in*  
*the Register Book*  
*J.M.*  
*7/1/80*

The amount of Entry Fee £ 3 : : received by me.  
 Special .. £ 13 : 16 : - *paid 21/11/80*  
 Certificate (if required) .. £ : 5 : - 18  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ 1. 1. 0)

*J. M. Gegan & P. M. Salmon*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *Tuesday, June, 29th, 1880.*

