

REPORT ON MACHINERY.

(Received in London Office 4/11/81)

No. 5536 Survey held at Glasgow & Whiteinch Date, first Survey 7th Decr 1880 Last Survey 28th Novr 1881
 Reg. Book. 3836.05 Tons 2505.4
 on the S.S. "City of Calcutta"
 Master W^r Robertson Built at Whiteinch When built 1881
 Engines made at Glasgow By whom made J. & J. Thomson when made 1881
 Boilers made at Glasgow By whom made " when made 1881
 Registered Horse Power 650 Owners G. Smith & Son Port belonging to Glasgow

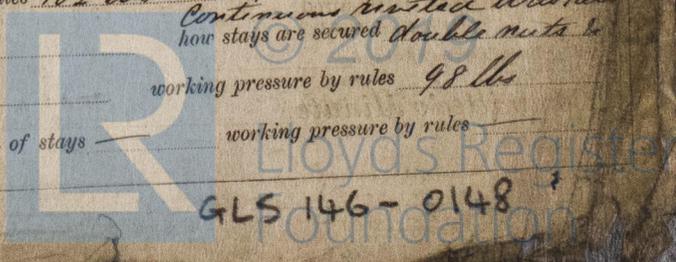
ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting
 Diameter of Cylinders 50 & 96 Length of Stroke 60 No. of Rev. per minute 55 Point of Cut off, High Pressure 4.0 Low Pressure 4.0
 Diameter of Screw shaft 16 7/8 Diameter of Tunnel shaft 16 Diameter of Crank shaft journals 17 1/2 Diameter of Crank pin 17 1/2 size of Crank webs 20 1/2 x 11
 Diameter of screw 19.0 Pitch of screw 27.0 No. of blades Four state whether moveable Yes total surface 107.84 a feet
 No. of Feed pumps Two diameter of ditto 5 Stroke 30 Can one be overhauled while the other is at work yes
 No. of Bilge pumps Two diameter of ditto 6 Stroke 30 Can one be overhauled while the other is at work yes
 Where do they pump from Engine Room, Stokehold & Holds.
 No. of Donkey Engines one Size of Pumps 5 1/2 x 15 State Slide Where do they pump from Sea, Hot well & 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 Two and sizes 3 1/2 Are they connected to condenser, or to circulating pump to Circ pump
 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 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 suction to fore hold 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 Engine Room Skylight

BOILERS, &c.—

Number of Boilers Three Description Flat sided, Horizontal Multitubular.
 Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs per sq Date of test 2nd July 1881
 Description of superheating apparatus or steam chest Vertical Domes
 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 112 a feet Description of safety valves Direct Spring
 No. to each boiler Two area of each valve 28.7 a 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 7 feet from Bunkers double riveted
 Diameter of boilers 12.3 Length of boilers 18.0 description of riveting of shell long. seams double butt strap circum. seams double
 Thickness of shell plates 1/2 diameter of rivet holes 15/16 whether punched or drilled drilled pitch of rivets 3 1/2
 Lap of plating 10 1/2 Straps per centage of strength of longitudinal joint 73 working pressure of shell by rules 85 lbs
 size of manholes in shell 15 1/2 x 12 size of compensating rings 3 x 3 x 1/2
 No. of Furnaces in each boiler Six outside diameter 40 length, top 7.0 bottom through
 Thickness of plates 1/2 iron description of joint welded if rings are fitted yes greatest length between rings 3.3
 Working pressure of furnace by the rules 172 lbs
 Combustion chamber plating, thickness, sides 7/16 Steel full back no back top 1/2
 Pitch of stays to ditto sides 8 3/4 x 8 3/4 back — top 9 x 8
 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 77 lbs for sides & 94 lbs for top
 Diameter of stays at smallest part 1 1/4 working pressure of ditto by rules 102 lbs
 End plates in steam space, thickness 3/4 pitch of stays to ditto 18 x 15 how stays are secured Continuous riveted washers
 Working pressure by rules 98 lbs diameter of stays at smallest part 2 3/8 working pressure by rules 98 lbs
 Front plates at bottom, thickness 1/2 Back plates, thickness — greatest pitch of stays — working pressure by rules —



Diameter of tubes $3\frac{3}{4}$ pitch of tubes 5×5 thickness of tube plates, front $\frac{1}{2}$ back $\frac{5}{8}$
 How stayed *Stay Tubes* pitch of stays $10 \times 12 \times 14 \times 15$ width of water spaces 6
 Diameter of Superheater or Steam chest 42 length 5×6
 Thickness of plates $\frac{1}{2}$ description of longitudinal joint *double lap* diameter of rivet holes $\frac{7}{8}$ pitch of rivets 3
 Working pressure of shell by rules 184 lbs Diameter of flue *no flue* thickness of plates
 If stiffened with rings — distance between rings — Working pressure by rules —
 End plates of superheater, or steam chest; thickness $9/16$ How stayed *no stays - ends dished*
 Superheater or steam chest; how connected to boiler *by neck pieces 9/16 thick*

DONKEY BOILER— Description *Flat sided Multitubular*
 Made at *Glasgow* By whom made *J. & J. Thomson* when made *1881*
 Where fixed *on Deck* working pressure 60 lbs Tested by hydraulic pressure to 120 lbs per sq. in. No. of Certificate *558*
 Fire grate area 25.8 sq. feet Description of safety valves *Direct Spring* No. of safety valves *Two* area of each 7.06 sq. in.
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Diameter of donkey boiler 6.6 length 8.0 height 9.6 description of riveting *lap double*
 thickness of shell plates $\frac{1}{2}$ diameter of rivet holes $\frac{13}{16}$ whether punched or drilled *punched*
 pitch of rivets 3 lap of plating $3\frac{1}{2}$ per centage of strength of joint 68
 thickness of crown plates — stayed by —
 Diameter of furnace, top 30 bottom — length of furnace 5.6 to 7.6 at bottom
 thickness of plates $7/16$ & $\frac{1}{2}$ description of joint *Lap double*
 thickness of furnace crown plates — stayed by —
 Working pressure of shell by rules 67 lbs working pressure of furnace by rules 103 lbs
 diameter of uptake — thickness of plates — thickness of water tubes —

The foregoing is a correct description,
John & James Thomson Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *The Engines and Boilers*)
have been carefully inspected by me during construction. The quality of workmanship is good. The Machinery & Boilers are now in good order and safe working condition and are in my opinion eligible to be noted in the Register Book. LLOYD'S M.C. 10.81.

*This is returned to the vessel
 is eligible to have the
 & Lloyd's M.C. records
 4/4/81*

Handwritten signature in blue ink

The amount of Entry Fee 3 : : : received by me,
 Special .. £ $2:10$: : :
 Certificate (if required) .. £ : : : $3/11/1881$
 To be sent as per margin.
 (Travelling Expenses, if any, £)

Handwritten signature
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute Friday, November, 4th 1881.