

# REPORT ON MACHINERY.

No. 6251

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No. in Survey held at *Glasgow* Date, first Survey *May 2<sup>nd</sup> 1883* Last Survey *Sept 8<sup>th</sup> 1883*  
 Reg. Book. on the *Screw Steamer Amraputra* (Number of Visits *16*) Tons *246 1/4*  
 Master *B. J. Barlow* Built at *Greenock* By whom built *Scott & Co* When built *1874*  
 Engines made at *Greenock* By whom made *Scott & Co* when made *1874*  
 Boilers made at *Dunbarton* By whom made *Denny & Co* when made *1882 3*  
 Registered Horse Power *300* Owners *British & Burmese India Navigation Co Ltd* Port belonging to *Glasgow*

## ENGINES, &c.—

Description of Engines  
 Diameter of Cylinders *45 x 78* Length of Stroke *45* No. of Rev. per minute — Point of Cut off, High Pressure — Low Pressure —  
 Diameter of Screw shaft *1-1/2* Diam. of Tunnel shaft *1-0 3/4* Diam. of Crank shaft journals *1-1 1/2* Diam. of Crank pin *1-1 1/2* size of Crank webs *9 x 13 1/4*  
 Diameter of screw — Pitch of screw — No. of blades — state whether moveable — total surface —  
 No. of Feed pumps *Two* diameter of ditto *5* Stroke *23* Can one be overhauled while the other is at work *Yes*  
 No. of Bilge pumps *Two* diameter of ditto *5* Stroke *23* Can one be overhauled while the other is at work *Yes*  
 Where do they pump from *Sea, Holdwell, Holds + Bilges.*  
 No. of Donkey Engines *One + hand* Size of Pumps — Where do they pump from *Same as Bilge pumps.*

Are all the bilge suction pipes fitted with roses — Are the roses always accessible — Are the sluices on Engine room bulkheads always accessible —  
 No. of bilge injections *One* and sizes *6* Are they connected to condenser, or to circulating pump *Circulating pump.*  
 How are the pumps worked *By levers from cross head of each engine.*  
 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 —  
 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 *August 1<sup>st</sup> 1883*  
 Is the screw shaft tunnel watertight — and fitted with a sluice door — worked from —

## BOILERS, &c.—

Number of Boilers *Four* Description *Oval. Multitubular* Whether Steel or Iron —  
 Working Pressure *70 lbs* Tested by hydraulic pressure to *140 lbs* Date of test *Dec 12<sup>th</sup> 1882.*  
 Description of superheating apparatus or steam chest *None*  
 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 *41.6* Description of safety valves *Direct spring* No. to each boiler *Two*  
 Area of each valve *11 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 *Yes* Smallest distance between boilers and bunkers or woodwork *11* Diameter of boilers *9-6 x 15-2*  
 Length of boilers *9-8 1/4* description of riveting of shell long. seams *Treble-Lap* circum. seams *Double lap* Thickness of shell plates *5/8 + 13/16*  
 Diameter of rivet holes *1* whether punched or drilled *Drilled* pitch of rivets *4 1/2 x 2 1/4* Lap of plating *7 3/4*  
 Per centage of strength of longitudinal joint *75.6* working pressure of shell by rules *74 lbs* size of manholes in shell *13 x 17*  
 Size of compensating rings *Doubling plate 32 x 30. 5/8 thick* No. of Furnaces in each boiler *Two*  
 Outside diameter *3-5* length, top *6-3 1/2* bottom *8-10* thickness of plates *1/2* description of joint *Butt* if rings are fitted *Yes*  
 Greatest length between rings *6-0* working pressure of furnace by the rules *95 lbs* combustion chamber plating, thickness, sides *1/2* back *1/2* top *1/2*  
 Pitch of stays to ditto, sides *9 x 7 1/2* back *8 x 8* top — If stays are fitted with nuts or riveted heads *Nuts inside* working pressure of plating by rules *75 lbs* Diameter of stays at smallest part *1 1/4 x 1 3/8* working pressure of ditto by rules *91 lbs* end plates in steam space, thickness *1/16*  
 Pitch of stays to ditto *16 x 16* how stays are secured *Nuts, rivet washers* working pressure by rules *75 lbs* diameter of stays at smallest part *2 3/8* working pressure by rules *100 lbs* Front plates at bottom, thickness *3/4* Back plates, thickness *3/4*  
 Greatest pitch of stays *14* working pressure by rules *70 lbs* Diameter of tubes *3 1/2* pitch of tubes *4 1/4* thickness of tube plates, front *1/16* back *1/16* how stayed *Tubes* pitch of stays *17* width of water spaces *5*  
 Diameter of Superheater or Steam chest — length — thickness of plates — description of longitudinal joint — diam. 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

Made at \_\_\_\_\_ by whom made \_\_\_\_\_ when made \_\_\_\_\_ where fixed \_\_\_\_\_  
 Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ No. of Certificate \_\_\_\_\_ fire grate area \_\_\_\_\_ description of  
 valves \_\_\_\_\_ No. of safety valves \_\_\_\_\_ area of each \_\_\_\_\_ if fitted with easing gear \_\_\_\_\_ if steam from main boiler  
 enter the donkey boiler \_\_\_\_\_ diameter of donkey boiler \_\_\_\_\_ length \_\_\_\_\_ description of riveting \_\_\_\_\_  
 Thickness of shell plates \_\_\_\_\_ diameter of rivet holes \_\_\_\_\_ whether punched or drilled \_\_\_\_\_ pitch of rivets \_\_\_\_\_ lap of plating \_\_\_\_\_  
 per centage of strength of joint \_\_\_\_\_ thickness of crown plates \_\_\_\_\_ stayed by \_\_\_\_\_  
 Diameter of furnace, top \_\_\_\_\_ bottom \_\_\_\_\_ length of furnace \_\_\_\_\_ thickness of plates \_\_\_\_\_ description of joint \_\_\_\_\_  
 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 \_\_\_\_\_

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

Denny &amp; Co. Manufacturers of new main boilers.

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

These Boilers have been constructed under Special Sur-  
 at the works of Messrs Denny & Co. in accordance with the Rules & require-  
 of the Society. They have now been satisfactorily fitted on board.  
 tested under steam to a working pressure of 70 lbs per sq ins.  
 The Donkey <sup>Boiler</sup> has been examined over all parts & tested under steam  
 to a working pressure of 40 lbs per sq ins.

The Engines have been subjected to N<sup>o</sup> 2 survey and there were exam-  
 the cylinders, pistons, slide valves, air, circulating, feed & bilge  
 crankshaft & shafting in tunnel, also bilge & steam pipes, &c.

The old flaw in left crank pin also the flaw in left bearing,  
 Forward half of crank shaft do not appear to have undergone  
 any alteration since last survey.

The bilge valve box in the stokehold has been raised above the floor,  
 & attached to the bulk head whereby the valves are much more acc.  
 than hitherto.

The Feed & Bilge pumps have been fitted with  
 new glands & bushes also new valves, while the plungers have been  
 turned in the lathe.

The tunnel shafting was found to be a  
 what out of line (both when the vessel was afloat & in dry dock), is  
 therefore been disconnected & the bearings raised to their correct  
 When the vessel was in dock the connections of sea cocks, valves, Propellers  
 were all examined.

These Engines & Boilers are now in good & safe working condition  
 eligible in my opinion to be classed **L.M.C. & N.B. 9-83**

The amount of Entry Fee .. £ 3 : 0 : 0 received by me,

Special

New Boilers .. £ 12 : 3 : 0

Donkey Boiler Fee .. £ 0 : 0 : 0

Certificate (if required) .. £ 0 : 0 : 0 28/9/1883

To be sent as per margin.

(Travelling Expenses, if any, £ \_\_\_\_\_)

Committee's Minute

It is submitted  
 that this vessel is  
 eligible to have the material  
 classed L.M.C. & N.B. 9-83  
 W.E.P. 1/10/83

Walter. E. Polson  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

+ N.B. L.M.C. 9-83