

REPORT ON MACHINERY.

No. 30159

Date of writing Report May 13th 1911 When handed in at Local Office 19 MAY 1911 Port of Glasgow
 No. in Survey held at Glasgow Date, First Survey 25th April 1910 Last Survey May 12th 1911
 Reg. Book. on the TWIN S/S "ELEPHANTA" (Number of Visits 97)
 Master R. H. Coope Built at Whitinch By whom built Barclay Curle & Co. Ltd. Tons { Gross 5292
 Engines made at Glasgow By whom made Barclay Curle & Co. Ltd. Net 2695
 Boilers made at Glasgow By whom made Barclay Curle & Co. Ltd. When built 1911
 Registered Horse Power 1086 Owners British India Steam Navigation Co. Ltd. Port belonging to Glasgow
 Nom. Horse Power as per Section 28 1086 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple expansion (Twin) No. of Cylinders 6 No. of Cranks 6
 Dia. of Cylinders 23 $\frac{1}{4}$ - 39 $\frac{1}{2}$ - 67 Length of Stroke 48 Revs. per minute 100 Dia. of Screw shaft 13 $\frac{1}{2}$ as per rule 13 $\frac{1}{2}$ Material of steel
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes Is the after end of the liner made water tight
 in the propeller boss yes If the liner is in more than one length are the joints burned yes If the liner does not fit tightly at the part
 between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive yes If two
 liners are fitted, is the shaft lapped or protected between the liners yes Length of stern bush 4'-9"
 Dia. of Tunnel shaft 12 $\frac{1}{2}$ as per rule 12 $\frac{1}{2}$ Dia. of Crank shaft journals 13 $\frac{1}{2}$ as per rule 13 $\frac{1}{2}$ Dia. of Crank pin 13 $\frac{7}{8}$ Size of Crank webs 9 $\frac{1}{2}$ x 20 Dia. of thrust shaft under
 collars 13 $\frac{7}{8}$ Dia. of screw 16'-0" Pitch of Screw 19'-6" No. of Blades 3 State whether moveable yes Total surface 65.5
 No. of Feed pumps 2 Diameter of ditto 10 $\frac{1}{2}$ Stroke 26 Can one be overhauled while the other is at work yes
 No. of Bilge pumps 1 duplex Diameter of ditto 6 Stroke 6 Can one be overhauled while the other is at work yes
 No. of Donkey Engines 3 Sizes of Pumps 11" x 10" 7" x 12" 2 $\frac{1}{2}$ x 5" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 20 $\frac{3}{4}$ x 8 Room Aft, x 20 $\frac{3}{4}$ x 8 Stokehold Aft. In Holds, &c. 20 $\frac{3}{4}$ x 8 Bunker Hold, 20 $\frac{3}{4}$ x 8 No. 1 Hold,
20 $\frac{3}{4}$ x 8 No. 2 Hold, 20 $\frac{3}{4}$ x 8 No. 3 Hold, 10 $\frac{1}{2}$ x 8 Tunnel Well, x 10 $\frac{1}{2}$ x 8 to Rat Box
 No. of Bilge Injections 2 sizes 10" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size 4"
 Are all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes Are the sluices on Engine room bulkheads always accessible none
 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 below the deep water line yes
 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 none How are they protected —
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges yes
 Dates of examination of completion of fitting of Sea Connections 30.3.11 of Stern Tube 30.3.11 Screw shaft and Propeller 30.3.11
 Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from cylinder platform

BOILERS, &c.—(Letter for record 28. May 1911) Manufacturers of Steel Delville & Sons, Steel Co. of Scotland, Glasgow & Co. & Renfrew & Co. Ltd.
 Total Heating Surface of Boilers 16851 Is Forced Draft fitted yes No. and Description of Boilers 2 Double Ended
 Working Pressure 215 lbs. Tested by hydraulic pressure to 430 lbs. Date of test 7.3.11 No. of Certificate 10844
 Can each boiler be worked separately yes Area of fire grate in each boiler 143 No. and Description of Safety Valves to
 each boiler three spring loaded Area of each valve 12.56 Pressure to which they are adjusted 220 lbs. Are they fitted with easing gear yes
 Smallest distance between boilers 18 Mean dia. of boilers 15'-9" Length 21'-0" Material of shell plates steel
 Thickness 1 $\frac{5}{8}$ " Range of tensile strength 30/34 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams T.R.
 long. seams T.R. D.B.S. Diameter of rivet holes in long. seams 1 $\frac{5}{8}$ " Pitch of rivets 10 $\frac{1}{2}$ Lap of plates or width of butt straps 23
 Per centages of strength of longitudinal joint 94.4 Working pressure of shell by rules 250 Size of manhole in shell 17 x 13
 Size of compensating ring 10 x 15 $\frac{1}{8}$ No. and Description of Furnaces in each boiler 8 horizontal suspension Material steel Outside diameter 3'-7 $\frac{1}{4}$ "
 Length of plain part top 7 $\frac{5}{8}$ " bottom 7 $\frac{5}{8}$ " Thickness of plates top 7 $\frac{5}{8}$ " bottom 7 $\frac{5}{8}$ " Description of longitudinal joint weld No. of strengthening rings —
 Working pressure of furnace by the rules 232 Combustion chamber plates: Material steel Thickness: Sides 2 $\frac{1}{2}$ " Back 2 $\frac{1}{2}$ " Top 2 $\frac{1}{2}$ " Bottom 1 $\frac{5}{8}$ "
 Pitch of stays to ditto: Sides 8 x 8 Back 7 $\frac{3}{4}$ x 8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 232
 Material of stays steel Diameter at smallest part 1.73 Area supported by each stay 64 Working pressure by rules 216 End plates in steam space:
 Material steel Thickness 1 $\frac{1}{2}$ " Pitch of stays 20 x 15 $\frac{1}{4}$ How are stays secured Druts Working pressure by rules 221 Material of stays steel
 Diameter at smallest part 7.24 Area supported by each stay 305 Working pressure by rules 246 Material of Front plates at bottom steel
 Thickness 2 $\frac{1}{2}$ " Material of Lower back plate — Thickness — Greatest pitch of stays — Working pressure of plate by rules —
 Diameter of tubes 2 $\frac{1}{2}$ " Pitch of tubes 3 $\frac{3}{4}$ x 3 $\frac{3}{4}$ Material of tube plates steel Thickness: Front 3 $\frac{1}{2}$ " Back 1 $\frac{3}{16}$ " Mean pitch of stays abt. 7 $\frac{3}{8}$ "
 Pitch across wide water spaces 13 $\frac{1}{2}$ " Working pressures by rules 224 Girders to Chamber tops: Material steel Depth and
 thickness of girder at centre 9 x 20 $\frac{3}{4}$ Length as per rule 4'-7 $\frac{3}{8}$ Distance apart 8 $\frac{1}{2}$ Number and pitch of stays in each 607 $\frac{3}{4}$ "
 Working pressure by rules 292 Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked
 separately yes Diameter — Length — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet
 holes — Pitch of rivets — Working pressure of shell by rules — Diameter of flue — Material of flue plates — Thickness —
 If stiffened with rings yes Distance between rings — Working pressure by rules — End plates: Thickness — How stayed —
 Working pressure of end plates — Area of safety valves to superheater — Are they fitted with easing gear —

Assigned See accompanying

W 497-0343

Manufacturers of Steel

SPARE GEAR. State the articles supplied:— 2 Connecting-rod top end bolts and nuts, 2 connecting-rod bottom end bolts & nuts, 2 main bearing bolts, 1 set of coupling bolts, 1 set of feed and bilge pump valves, 1 set of piston springs, a quantity of assorted bolts & nuts, none of various sizes, and one propeller shaft.

The foregoing is a correct description,

FOR BARCLAY CURLE & Co., LTD

Manufacturer

James Gilchrist

Dates of Survey while building	During progress of work in shops - -	1910. Apr. 25. June 16. July 1. 2. 5. 13. 28. Aug. 5. 11. 17. 24. Sept. 5. 6. 9. 13. 15. 17. 20. 21. 29
		Oct. 4. 6. 10. 11. 13. 18. 21. 25. 28. 31. Nov. 2. 7. 8. 10. 15. 16. 17. 18. 21. 23. 25. 28. 29. Dec. 2. 5. 7. 11. 12. 15. 19.
	During erection on board vessel - -	21. 22. 23. 26. 27. 29. 19. 11. Jan. 10. 16. 17. 21. 24. 25. 27. 28. 30. 31. Feb. 6. 9. 10. 13. 17. 21. 27. 28. Mar. 1. 4.
		7. 15. 17. 25. 28. 30. Apr. 3. 5. 10. 25. 27. 28. May 2. 4. 5. 6. 8. 9. 12.
Total No. of visits.	97.	

Is the approved plan of main boiler forwarded herewith *Forwarded in Gls. Rep. No 2*

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Dates of Examination of principal parts—Cylinders 10-18-11-10 Slides 10-11-10 Covers 18-11-10 Pistons 10-11-10 Rods 7-12-10
Connecting rods 7-12-10 Crank shaft 18-11-10 Thrust shafts 18-11-10 Tunnel shafts 21-2-11 Screw shafts 1-3-11 Propellers 1-3-11
Stern tube 7-3-11 Steam pipes tested 4-5-11 Engine and boiler seatings 3-4-11 Engines holding down bolts 2-5-11
Completion of pumping arrangements 5-5-11 Boilers fixed 2-5-11 Engines tried under steam 12-5-11
Main boiler safety valves adjusted 9-5-11 Thickness of adjusting washers $\frac{3}{8}$ " $\frac{3}{8}$ " $\frac{3}{8}$ " $\frac{3}{8}$ " $\frac{3}{8}$ " $\frac{3}{8}$ " $\frac{3}{8}$ " $\frac{3}{8}$ "
Material of Crank shaft steel Identification Mark on Do. 487 Material of Thrust shaft steel Identification Mark on Do. 487
Material of Tunnel shafts steel Identification Marks on Do. 487 Material of Screw shafts steel Identification Marks on Do. 487
Material of Steam Pipes Wrot. Iron Test pressure 645 lbs. per sq. inch

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

The machinery of this vessel has been constructed under special survey in accordance with the rules and approved plans, and has been seen working satisfactorily under steam. The materials and workmanship are good.

This machinery is eligible, in my opinion, to be classed **+** L.M.C. 5-11

The machinery of this vessel is an exact duplicate of that fitted in the 2 1/2 Edavani,
Glasgow Report No 30018

It is submitted that
this vessel is eligible for
THE RECORD. L m

F.D.

The amount of Entry Fee	.. £	3	:	-	:	When applied for,
Special £	72	:	3	:	18/5/19..
Donkey Boiler Fee £		:		:	When received,
Travelling Expenses (if any)	£		:		:	15/5/19..

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

Committee's Minute

Glasgow

23 MAY. 1911

Assigned $\frac{1}{2}$ LMC 5.11

72.

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Foundation