

# REPORT ON MACHINERY.

3492

Port of Belfast

Received at London Office 22 OCT. 88

No. 3492

No. in Survey held at Belfast

Date, first Survey 1<sup>st</sup> Feb 7

Last Survey 13 Oct. 1888

Reg. Book.

Sup. on the Steel Screw Steamer "Palmas"

(Number of Visits 29) net 1560  
Tons 2428

Master John Evans Built at Belfast By whom built Harland & Wolff When built 1888

Engines made at Belfast By whom made MacIlwaine Lewis & Co when made 1888

Boilers made at Belfast By whom made MacIlwaine Lewis & Co when made 1888

Registered Horse Power 220 Owners Alfred Lewis Jones Port belonging to Liverpool

## ENGINES, &c.—

Description of Engines Triple expansion 3 cylinders + 3 cranks.

Diameter of Cylinders 23.38 + 6.2 Length of Stroke 42 No. of Rev. per minute 42 Point of Cut off, High Pressure 25<sup>2</sup>/<sub>8</sub>" Low Pressure 23<sup>2</sup>/<sub>8</sub>"

Diameter of Screw shaft 11<sup>3</sup>/<sub>4</sub>" Diam. of Tunnel shaft 11" Diam. of Crank shaft journals 11<sup>3</sup>/<sub>4</sub>" Diam. of Crank pin 11<sup>3</sup>/<sub>4</sub>" size of Crank webs 14<sup>1</sup>/<sub>2</sub> x 7<sup>1</sup>/<sub>4</sub>"

Diameter of screw 15'-0" Pitch of screw 14'-0" No. of blades 4 state whether moveable no total surface 65 sq. ft.

No. of Feed pumps 2 diameter of ditto 3<sup>1</sup>/<sub>2</sub>" Stroke 21" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 diameter of ditto 3<sup>1</sup>/<sub>2</sub>" Stroke 21" Can one be overhauled while the other is at work Yes

Where do they pump from Lead from hotwell & Bilge from all cargo. comp<sup>s</sup> & 2<sup>nd</sup> 1<sup>st</sup> spaces.

No. of Donkey Engines 2 Size of Pumps 1 1/2 hp. 7 dia. 19 in. 4 1/2 plin. 3 1/2 out. 1 1/2 in. 1 hp. 4.5 dia. 16 in. 2 1/2 plin. 1 1/2 in. Where do they pump from Sea, ballast & waste steam tanks, all bilges, hotwell and boilers.

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 One and sizes 4<sup>1</sup>/<sub>2</sub>" Are they connected to condenser, or to circulating pump Circulating suction.

How are the pumps worked by levers and links from the two after engines.

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Cocks & valves

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 None 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 24<sup>th</sup> July before launching

Was the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Upper deck

## BOILERS, &c.—

Number of Boilers Two Description Circul. single ended Whether Steel or Iron Steel

Working Pressure 160 lbs. Tested by hydraulic pressure to 320 lbs. Date of test 25<sup>th</sup> Aug. 1888

Description of superheating apparatus or steam chest None fitted

Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately ✓

Area of square feet of fire grate surface in each boiler 55 sq. ft. Description of safety valves 10. Coekburns No. to each boiler Two

Area of each valve 3.14 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 16" Diameter of boilers 14'-0"

Length of boilers 10'-6" description of riveting of shell long. seams 6 to 3 1/2 rivets with circum. seams 10 to 12 rivets Thickness of shell plates 1<sup>3</sup>/<sub>8</sub>"

Diameter of rivet holes 1<sup>3</sup>/<sub>16</sub>" whether punched or drilled drilled pitch of rivets 8.5" Lap of plating 15<sup>1</sup>/<sub>2</sub> x 1<sup>1</sup>/<sub>16</sub>" B.S.

Percentage of strength of longitudinal joint 85 + 95 working pressure of shell by rules 160 lbs. size of manholes in shell 16" x 12"

Are there compensating rings manhole through front plate No. of Furnaces in each boiler 3

Outside diameter 3'-5" length, top 6'-1" bottom 8'-10" thickness of plates 3<sup>5</sup>/<sub>16</sub>" description of joint Purves Pt. if rings are fitted 2 AI

Greatest length between rings ✓ working pressure of furnace by the rules 160 lbs. combustion chamber plating, thickness, sides 2" back 2" top 2"

Thickness of stays to ditto, sides 6<sup>3</sup>/<sub>8</sub> x 6<sup>3</sup>/<sub>8</sub>" back 6<sup>3</sup>/<sub>8</sub> x 6<sup>3</sup>/<sub>8</sub>" top 6<sup>1</sup>/<sub>2</sub> x 6<sup>3</sup>/<sub>8</sub>" If stays are fitted with nuts or riveted heads nutted inside & rivets back rivets through shell. working pressure of plating by rules 162 lbs.

Diameter of stays at smallest part 1<sup>1</sup>/<sub>8</sub>" working pressure of ditto by rules 168 lbs. end plates in steam space, thickness 1<sup>3</sup>/<sub>8</sub>" doubled with 3<sup>1</sup>/<sub>4</sub>"

Thickness of stays to ditto 19 x 19" how stays are secured 6 to 6 nuts working pressure by rules 168 lbs. diameter of stays at smallest part 2<sup>3</sup>/<sub>16</sub>" working pressure by rules 168 lbs. Front plates at bottom, thickness 1<sup>1</sup>/<sub>16</sub>" Back plates, thickness 1<sup>1</sup>/<sub>16</sub>"

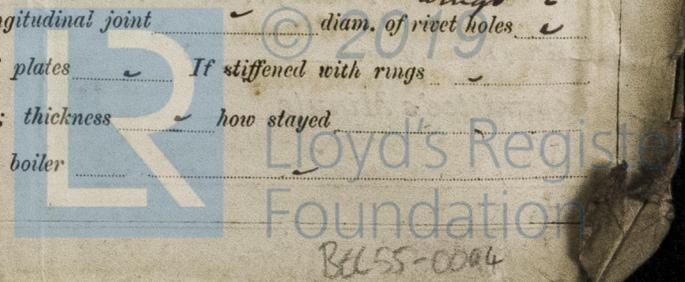
Greatest pitch of stays 12" working pressure by rules 160 lbs. Diameter of tubes 3<sup>1</sup>/<sub>2</sub>" 8 in pitch of tubes 4<sup>1</sup>/<sub>2</sub> x 4<sup>1</sup>/<sub>2</sub>" thickness of tube plates, front 1<sup>1</sup>/<sub>16</sub>" back 1<sup>1</sup>/<sub>16</sub>" how stayed Stay tubes pitch of stays 9<sup>1</sup>/<sub>2</sub> x 14<sup>1</sup>/<sub>4</sub>" width of water spaces back 10<sup>1</sup>/<sub>2</sub> 7"

Diameter of Superheater or Steam chest ✓ length ✓ thickness of plates ✓ description of longitudinal joint ✓ diam. of rivet holes ✓

Thickness 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 ✓



BEL 55-0004

**DONKEY BOILER**— Description *Circular horizontal multitubular Steel*  
 Made at *Belfast* by whom made *MacLuraine, Lewis & Co.* when made *1888* where fixed *Upper deck*  
 Working pressure *60 lbs* tested by hydraulic pressure to *120 lbs* No. of Certificate *37* fire grate area \_\_\_\_\_ description of safety valves \_\_\_\_\_  
 No. of safety valves *See accompanying fittings* if steam from main boilers \_\_\_\_\_  
 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:— *1 spare propeller, 1 circulating & 1 air pump rod, 1 slide valve spindle; 2 fwd & bilge valves; 2 bottom & 2 top end bolts and nuts for connecting rod; 2 main bearing bolts & nuts; 1 set of coupling bolts; 1 set of air pump valves, 1 set of air pump valves, 1 set of springs for S.P. piston, The foregoing is a correct description, Spare main bottom spring for M. & H. pistons, nuts & bolts of various sizes & assorted, and suitable bars of iron.*  
*MacLuraine Lewis & Co. Ltd. Manufacturer.*  
*John H. MacLuraine Director*

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

The machinery of above steamer has been constructed & fitted on board in accordance with the plans of Boilers approved by the Committee the Secretary's letters dated 9th Jan. 25th April & 6th July, 1888; the Rules of the Society or equal thereto for scantlings and arrangements of machinery for First Entry Survey and to the satisfaction of the undersigned.

The steel for Boilers has been tested according to the Rules and the boilers under hydraulic and steam pressures giving entire satisfaction.

The safety valves are to be adjusted at Liverpool in accordance with the intimation of which was sent to the Surveyors.

The material used in the construction of the machinery and the workmanship throughout are good and satisfactory; I would therefore respectfully recommend to the Committee's favourable consideration the Owners application for the notification of L.M.C. and the entry of same in the Society's Register Book.

*James Maxton*

The amount of Entry Fee ... £ 2 : 0 : 0 received by me,  
 Special ... £ 32 : 0 : 0  
 Donkey Boiler Fee ... £ : :  
 Certificate (if required) ... £ : : 12.10.1888  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ )

*It is submitted that this vessel is eligible to have + LMC 10. PP recorded. M.D. 22.10.*  
**James Maxton**  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute **TUES 23 OCT 1888**  
 + LMC 10, 88

