

REPORT ON MACHINERY.

No. 24540

FRI JAN 5 - 1912

Date of writing Report 19 When handed in at Local Office 19/12 1911 Port of Hull
 No. in Survey held at Reg. Book. Hull Date, First Survey July 27th Last Survey Dec 20th 1911
 Name of the ship on the S/S *Lawson EMLEY* (Number of Visits 34)
 Master Built at *Belby* By whom built *Lockhart & Sons* Tons Gross 223 Net 88
 Engines made at *Hull* By whom made *Amos Smith Ltd.* When built 1911
 Boilers made at *5* By whom made *5* when made *5*
 Registered Horse Power Owners *G. W. Nathan, S. S. Fothergill & Co.* Port belonging to *Hull*
 Nom. Horse Power as per Section 28 51 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted No.

ENGINES, &c.—Description of Engines *Vertical triple expansion* No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 10-17-28 Length of Stroke 24 Revs. per minute 114 Dia. of Screw shaft as per rule 7.2 Material of screw shaft *Iron*
 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 — 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 — If two
 liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 32
 Dia. of Tunnel shaft as per rule 5.76 Dia. of Crank shaft journals as per rule 6.02 Dia. of Crank pin 6.2 Size of Crank webs 27x48 Dia. of thrust shaft under
 collars 6.3 Dia. of screw 10.0 Pitch of Screw 7.6 mean No. of Blades 4 State whether moveable No Total surface 31 ft.
 No. of Feed pumps one Diameter of ditto 2.2 Stroke 11 Can one be overhauled while the other is at work —
 No. of Bilge pumps one Diameter of ditto 2.2 Stroke 11 Can one be overhauled while the other is at work —
 No. of Donkey Engines one Sizes of Pumps 6x3x6 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 2.2 4 in. aft. In Holds, &c. 2.2 4 in. fore head, main beam &

bilge tank. 2 in. 4 in. suction to all bilges with discharge over deck.
 No. of Bilge Injections 1 sizes 3 Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size 2 in. 4 in.
 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 No
 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 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 Hold suction How are they protected Wood casing
 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 10.10.11 of Stern Tube 10.10.11 Screw shaft and Propeller 10.10.11.
 Is the Screw Shaft Tunnel watertight None Is it fitted with a watertight door — worked from —

OILERS, &c.—(Letter for record S.) Manufacturers of Steel *Geewerkshaft Gussel Werke, &c.*
 Total Heating Surface of Boilers 872 ft. Is Forced Draft fitted No No. and Description of Boilers 1 S.E. *Machtstube*
 Working Pressure 200 lbs. Tested by hydraulic pressure to 400 lbs. Date of test 25.11.11. No. of Certificate 1859.
 Can each boiler be worked separately — Area of fire grate in each boiler 25 ft. No. and Description of Safety Valves to
 each boiler 2 Spring loaded Area of each valve 3.1416 Pressure to which they are adjusted 205 lbs. Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 7 in. Mean dia. of boilers 11.0 Length 9.6 Material of shell plates *Skel.*
 Thickness 1 Range of tensile strength 29-33 lbs. Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams 5/8 Lap
 long. seams 5/8 5/8 Diameter of rivet holes in long. seams 1 1/8 Pitch of rivets 7 1/2 Lap of plates or width of butt straps 16 1/2
 Per centages of strength of longitudinal joint rivets 98.5 Working pressure of shell by rules 204 Size of manhole in shell 16x12
 plate 85 Size of compensating ring 3/4x1x1 No. and Description of Furnaces in each boiler 2 plain Material *Skel.* Outside diameter 3.3
 Length of plain part top 6.2 bottom 5.7 Thickness of plates crown 4.7 bottom 3.4 Description of longitudinal joint *Welded* No. of strengthening rings —
 Working pressure of furnace by the rules 203 Combustion chamber plates: Material *Skel.* Thickness: Sides 5/8 Back 5/8 Top 5/8 Bottom 13/16
 Pitch of stays to ditto: Sides 7 1/2 x 9 Back 8 1/2 x 7 1/2 Top 9 x 7 1/2 If stays are fitted with nuts or riveted heads Yes Working pressure by rules 202
 Material of stays *Skel.* Diameter at smallest part 1 1/2 = 2.39 Area supported by each stay 90.5 Working pressure by rules 238. End plates in steam space:
 Material *Skel.* Thickness 1 Pitch of stays 14 1/2 x 18 How are stays secured *Stays are secured with nuts and washers* Working pressure by rules 218 Material of stays *Skel.*
 Diameter at smallest part 5.08 Area supported by each stay 218.0 Working pressure by rules 240 Material of Front plates at bottom *Skel.*
 Thickness 1 Material of Lower back plate *Skel.* Thickness 1 Greatest pitch of stays 13 1/2 x 7 1/2 Working pressure of plate by rules 277
 Diameter of tubes 3 1/2 Pitch of tubes 4 3/4 x 4 1/2 Material of tube plates *Skel.* Thickness: Front 1 Back 3/8 Mean pitch of stays 9 1/2
 Pitch across wide water spaces 13 3/4 Working pressures by rules 203 Girders to Chamber tops: Material *Skel.* Depth and
 thickness of girder at centre 7 1/2 x 1 1/2 Length as per rule 2.7 1/2 Distance apart 7 1/2 Number and pitch of stays in each 20 9
 Working pressure by rules 204 Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked
 separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet
 plates Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness
 stiffened with rings 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

VERTICAL DONKEY BOILER—

Manufacturers of Steel

No.	Description				
Made at	By whom made		When made	Where fixed	
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area	Description of Safety
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Date of adjustment	
If fitted with easing gear	If steam from main boilers can enter the donkey boiler			Dia. of donkey boiler	Length
Material of shell plates	Thickness	Range of tensile strength	Descrip. of riveting long. seams		
Dia. of rivet holes	Whether punched or drilled	Pitch of rivets	Lap of plating	Per centage of strength of joint	Rivets Plates
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.	Dia. of stays	
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates	Description of joint	
Working pressure of furnace by rules	Thickness of furnace crown plates	Radius of do.	Stayed by		
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey		

SPARE GEAR. State the articles supplied:—Two top & two bottom end connecting rods, two main bearing bolts & nuts, one set of coupling bolts & nuts, one set of feed & bilge pump valves, one main & one donkey feed check valve, assorted bolts & nuts one set of air pump valves.

The foregoing is a correct description,

Manufacturer.

FOR AMOS & SMITH LTD.

Dates of Survey while building
 During progress of work in shops -- 1911: July 27. Aug 3. 5. 8. 14. 21. 23. 26. Oct 3. 5. 9. 10. 13. 20. 26. *lost*
 During erection on board vessel -- Nov 16. 21. 22. 25. 27. 28. 30. Dec. 1. 6. 8. 11. 12. 14. 16. 18. 20.
 Total No. of visits 34

Is the approved plan of main boiler forwarded herewith *Ref. 24521*

Dates of Examination of principal parts—Cylinders 30.11.11. Slides 6.12.11. Covers 30.11.11. Pistons 6.12.11. Rods 30.11.11.
 Connecting rods 1.12.11. Crank shaft 1.12.11. Thrust shaft 1.12.11. Tunnel shafts ✓ Screw shaft 5.10.11. Propeller 5.10.11.
 Stern tube 5.10.11. Steam pipes tested 14.12.11. Engine and boiler seatings 8.12.11. Engines holding down bolts 11.12.11.
 Completion of pumping arrangements 20.12.11. Boilers fixed 16.12.11. Engines tried under steam 16.12.11.
 Main boiler safety valves adjusted 16.12.11. Thickness of adjusting washers $8\frac{11}{32}$ P $\frac{5}{16}$.
 Material of Crank shaft *Steel*. Identification Mark on Do. *820*. 1.12.11. Material of Thrust shaft *Steel*. Identification Mark on Do. *820*. 1.12.11.
 Material of Tunnel shafts ✓ Identification Marks on Do. *5.10.11*. Material of Screw shafts *Iron*. Identification Marks on Do. *820*. 5.10.11.
 Material of Steam Pipes *Solid drawn Copper*. Test pressure 400 lbs.

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery & boiler of this vessel have been constructed under Special Survey, are of good material & workmanship & have been fitted & secured in accordance with the Rules. They are now in good working condition and respectfully submitted as being eligible in my opinion to have record of $\frac{1}{2}$ L.M.C. 12.11 in the Register Book.

It is submitted that this vessel is eligible for **SEA RECORD** + L.M.C. 12.11.

John W. Gwynne
 5/12

The amount of Entry Fee .. £ 1 : 0 : 0
 Special .. £ 8 : 0 : 0
 Donkey Boiler Fee .. £ : :
 Travelling Expenses (if any) £ - : 4 : 1

When applied for, 4.1.12

When received, 31.1.12

Committee's Minute TUE. JAN. 9 - 1912

Assigned + L.M.C. 12.11.

John W. Gwynne
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

MACHINERY CERTIFICATE
 WRITTEN.