

REPORT ON MACHINERY.

No. 65782
SAT. MAR. 20. 1914

Date of writing Report 13th Mar 1914 When handed in at Local Office 17. 3. 1914 Port of **NEWCASTLE-ON-TYNE.**
 No. in Survey held at **Newcastle** Date, First Survey 7th Aug 1912 Last Survey 13th Mar. 1914
 Reg. Book. on the **S.S. "San Yefeiino"** (Number of Visits 101)
 Master Built at **Newcastle** By whom built **Palmeis' Co** Tons { Gross 6430. Net 3921
 Engines made at **Newcastle** By whom made **Palmeis' Co** When built 1914
 Boilers made at **do** By whom made **do** when made 1914
 Registered Horse Power Owners **Eagle Oil Transport Co Ltd. Port belonging to London**
 Nom. Horse Power as per Section 28 554 Is Refrigerating Machinery fitted for cargo purposes **no** Is Electric Light fitted **yes**

ENGINES, &c.—Description of Engines **Quadruple Expansion** No. of Cylinders **4** No. of Cranks **4**
 Dia. of Cylinders **24"-35"-50 1/2"-73"** Length of Stroke **51"** Revs. per minute **75** Dia. of Screw shaft as per rule **15.06"** Material of screw shaft **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 **5'-3"**
 Dia. of Tunnel shaft as per rule **13.45"** Dia. of Crank shaft journals as per rule **14.12"** Dia. of Crank pin **14 1/2"** Size of Crank webs **20 3/4" x 9 3/4"** Dia. of thrust shaft under collars **14 1/2"** Dia. of screw **1 1/2"** Pitch of Screw **16'-3"** No. of Blades **4** State whether moveable **yes** Total surface **108 sq ft**
 No. of Feed pumps **2** Diameter of ditto **4 3/4"** Stroke **24"** Can one be overhauled while the other is at work **yes**
 No. of Bilge pumps **2** Diameter of ditto **4 1/2"** Stroke **24"** Can one be overhauled while the other is at work **yes**
 No. of Donkey Engines **2** Sizes of Pumps **10" x 12" x 12" & 8" x 6" x 8"** No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room **None 3 1/2"** In Holds, &c. **Two in bunkers 3 1/2"**
 No. of Bilge Injections **1** sizes **12"** Connected to condenser, or to circulating pump **yes** Is a separate Donkey Suction fitted in Engine room & size **yes 9"**
 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 or below the deep water line **Both**
 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 **yes**
 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 **28-1-14** of Stern Tube **28-1-14** Screw shaft and Propeller **2-2-14**
 Is the Screw Shaft Tunnel watertight **none** Is it fitted with a watertight door **yes** worked from **yes**

BOILERS, &c.—(Letter for record **R.**) Manufacturers of Steel **J. Spence & Sons & Palmeis' Co**
 Total Heating Surface of Boilers **7734 sq ft** Is Forced Draft fitted **yes** No. and Description of Boilers **3- single-ended**
 Working Pressure **220 lbs** Tested by hydraulic pressure to **440 lbs** Date of test **26-9-13** No. of Certificate **8564**
 Can each boiler be worked separately **yes** Area of fire grate in each boiler **57 sq ft** No. and Description of Safety Valves to each boiler **Two, Spring** Area of each valve **7.07 sq in** Pressure to which they are adjusted **225 lbs** Are they fitted with easing gear **yes**
 Smallest distance between boilers or uptakes and bunkers or woodwork **26"** Mean dia. of boilers **15'-6"** Length **11'-9"** Material of shell plates **Steel**
 Thickness **1 9/16"** Range of tensile strength **32-35** Are the shell plates welded or flanged **no** Descrip. of riveting: cir. seams **Lap** long. seams **B.S. & Rivet** Diameter of rivet holes in long. seams **1 19/32"** Pitch of rivets **9 3/8"** Lap of plates or width of butt straps **22 1/2"**
 Per centages of strength of longitudinal joint rivets **10.1** plate **8.3** Working pressure of shell by rules **258 lbs** Size of manhole in shell **16" x 12"**
 Size of compensating ring **36 1/4" x 32 1/4" x 1 7/8"** No. and Description of Furnaces in each boiler **3, Sights** Material **Steel** Outside diameter **48"**
 Length of plain part top **23 1/2"** crown **32"** bottom **32"** Description of longitudinal joint **Welded** No. of strengthening rings **yes**
 Working pressure of furnace by the rules **248 lbs** Combustion chamber plates: Material **Steel** Thickness: Sides **1 1/16"** Back **1 1/16"** Top **1 1/16"** Bottom **1 3/32"**
 Pitch of stays to ditto: Sides **8 1/4" x 7 1/2"** Back **7 1/8" x 7 1/2"** Top **8 3/8" x 7 3/8"** If stays are fitted with nuts or riveted heads **nuts** Working pressure by rules **254 lbs**
 Material of stays **Iron** Diameter at smallest part **2.03 in** Area supported by each stay **61.76 sq in** Working pressure by rules **245 lbs** End plates in steam space
 Material **Steel** Thickness **1 1/8"** Pitch of stays **16 1/2" x 16"** How are stays secured **S.N. & W.** Working pressure by rules **226 lbs** Material of stays **Steel**
 Diameter at smallest part **7.24 in** Area supported by each stay **264 sq in** Working pressure by rules **275 lbs** Material of Front plates at bottom **Steel**
 Thickness **1 1/16"** Material of Lower back plate **Steel** Thickness **3/32"** Greatest pitch of stays **14"** Working pressure of plate by rules **250 lbs**
 Diameter of tubes **2 1/2"** Pitch of tubes **3 3/4" x 3 3/4"** Material of tube plates **Steel** Thickness: Front **1 7/16"** Back **29/32"** Mean pitch of stays **8 7/16"**
 Pitch across wide water spaces **13 1/2"** Working pressures by rules **236 lbs** Girders to Chamber tops: Material **Steel** Depth and thickness of girder at centre **9 1/4" x 1 3/4"** Length as per rule **32 1/2"** Distance apart **8 3/8"** Number and pitch of stays in each **3-7 3/8"**
 Working pressure by rules **233 lbs** Superheater or Steam chest; how connected to boiler **none** Can the superheater be shut off and the boiler worked separately **yes**
 Diameter **yes** Length **yes** Thickness of shell plates **yes** Material **yes** Description of longitudinal joint **yes** Diam. of rivets **yes**
 Pitch of rivets **yes** Working pressure of shell by rules **yes** Diameter of flue **yes** Material of flue plates **yes** Thickness **yes**
 Stiffened with rings **yes** Distance between rings **yes** Working pressure by rules **yes** End plates: Thickness **yes** How stayed **yes**
 Working pressure of end plates **yes** Area of safety valves to superheater **yes** Are they fitted with easing gear **yes**



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 _____
 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:— 2 top-end, 2 bottom-end + 2 main-bearing bolts + nuts
 1 set of coupling bolts, 1 set of feed + bilge pump valves, 1 set of rings for each piston, a quantity of assorted bolts nuts + washers, a screw shaft, a propeller boss, 2 propeller blades, a slide valve spindle, a pair of crank pin bushes, 1 eccentric sheave + strap.
 The foregoing is a correct description, 1 air pump rod, 2 safety valve springs.
 J.F. Manufacturer.

Dates of Survey while building	During progress of work in shops	1912 Aug. 7-15-16-21-26-27-28-29. Sep. 3-9-10-16-23-25-26. Oct. 10-15-28-29. Nov. 5-6-13-27. Dec. 5-16-17-18.
	During erection on board vessel	1913 Jan. 7-9-16-17-24-30. Feb. 4-10-12-14-24. Mar. 5-6-7-11-25. Apr. 1-4-7-17-28. May 6-14-20-29. Jun. 3-13. Jul. 10-25.
	Total No. of visits	Aug. 7-19-20-21-22-27-29. Jan. 3-13. Jul. 10-25. Aug. 7-19-20-21-22-27-29. Sep. 20-14-19-26-29. Oct. 1-2-17-24-30. Nov. 5-14. Dec. 2-8-1914. Jan. 16-26-28-30. Feb. 2-9-25. Mar. 5-9-10-12-13.

101 visits

Dates of Examination of principal parts—Cylinders 27-11-12 Slides 9-1-13 Covers 8-8-12 Pistons 15-10-12 Rods 9-1-13
 Connecting rods 27-11-12 Crank shaft 5-3-13 Thrust shaft 1-4-13 Tunnel shafts 17-10-13 Screw shaft 2-10-13 Propeller 26-1-14
 Stern tube 17-12-12 Steam pipes tested 9-2-14 Engine and boiler seatings 28-1-14 Engines holding down bolts 5-3-14
 Completion of pumping arrangements 10-3-14 Boilers fixed 5-3-14 Engines tried under steam 10-3-14
 Main boiler safety valves adjusted 10-3-14 Thickness of adjusting washers PB. $P\frac{3}{8} S\frac{5}{16}$ SB. $P\frac{1}{2} S\frac{9}{16}$ FB. $P\frac{3}{4} S\frac{3}{4}$
 Material of Crank shaft Steel Identification Mark on Do. YX 3-13 Material of Thrust shaft Steel Identification Mark on Do. YX 4-13
 Material of Tunnel shafts Steel Identification Marks on Do. YX 10-13 Material of Screw shafts Steel Identification Marks on Do. YX 10-13
 Material of Steam Pipes Steel Test pressure 660 lbs

General Remarks (State quality of workmanship, opinions as to class, &c. The engines & boilers of this vessel have been constructed under special survey & the materials & workmanship are found to be good. The engines have been tried under steam & the safety valves adjusted at the working pressure. The boilers have been fitted for burning oil fuel on the Wallsend - Howden system and the special requirements for low flash oil have been complied with, but the vessel is going to sea under coal. The approved plan of oil burning arrangement is forwarded herewith. A report on the electric installation will be forwarded when received from the Electricians. The machinery is now in good & safe working condition & eligible in my opinion to have the notation of +LMC 3-14 fitted for low flash oil fuel 3-14. It is submitted that this vessel is eligible for THE RECORD. + LMC 3.14. F.D.

Certificate of Survey to be sent to the Registrar of Shipping, London, E.C.4.

The amount of Entry Fee	£ 3 0 0	When applied for, MAR 27 1914
Special	£ 47 14 0	
Donkey Boiler Fee	£ ✓ : ✓	When received, 4/4/14
Travelling Expenses (if any)	£ ✓ : ✓	

Committee's Minute TUE. MAR. 31. 1914

Assigned + LMC 3.14. F.D.
 Fitted for low flash oil 3.14

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

