

# REPORT ON MACHINERY.

Port of NEWCASTLE

Received at London Office

WED. 29 AUG 1900

No. in Survey held at Newcastle Date, first Survey July 18 1899 Last Survey Aug 27 1900  
 Reg. Book. S " BULYSES " (Number of Visits 67)  
 Supp 3 on the S BULYSES Tons Gross 6069 Net 3958  
 Master J. J. Scott Built at Newcastle By whom built Armstrong Whitworth & Co When built 1900  
 Engines made at Newcastle By whom made North Eastern Marine Eng' Co when made 8-1900  
 Boilers made at Newcastle By whom made North Eastern Marine Eng' Co when made 8-1900  
 Registered Horse Power - Owners Shell Transport & Trading Co Port belonging to London  
 Nom. Horse Power as per Section 28 486 Is Refrigerating Machinery fitted No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 28" 46" 44" Length of Stroke 48" Revs. per minute 65 Dia. of Screw shaft as per rule 14 3/8" Lgth. of stern bush 5-7"  
 Dia. of Tunnel shaft as per rule 13" Dia. of Crank shaft journals as per rule 13 1/8" Dia. of Crank pin 14 1/4" Size of Crank webs 26 3/4 x 9" Dia. of thrust shaft under collars 14 1/4" Dia. of screw 18-6" Pitch of screw 18-6" No. of blades 4 State whether moveable yes Total surface 108 sq ft  
 No. of Feed pumps 2 Diameter of ditto 4" Stroke 26" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 4 3/4" Stroke 26" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 3 duplex Sizes of Pumps 2 x 4 1/2 x 10", 2 x 8 1/2 x 10", 5 1/4 x 3 1/2 x 5" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room four 3 1/2" In Holds, &c. fore peak one 5", fore hold one 5", two 7" suction in each tank, also two bilge suction in each pump room.  
 No. of bilge injections 1 sizes 7" Connected to condenser, or to circulating pump pump Is a separate donkey suction fitted in Engine room & size yes 3 1/2"  
 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 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 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  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock before launch Is the screw shaft tunnel watertight no tunnel  
 Is it fitted with a watertight door / worked from /

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 8070 sq ft Is forced draft fitted No  
 No. and Description of Boilers 3 Mult. Single ended Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs  
 Date of test 29.5.00 Can each boiler be worked separately yes Area of fire grate in each boiler 75 sq ft No. and Description of safety valves to each boiler two direct spring Area of each valve 8.29 sq in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers on mid-ship 30" Mean dia. of boilers 16-4 1/2" Length 11-5 1/2" Material of shell plates Steel  
 Thickness 1 1/32" Range of tensile strength 29.32 Are they welded or flanged No Descrip. of riveting: cir. seams lap d r long. seams DBS, TR  
 Diameter of rivet holes in long. seams 1 5/8" Pitch of rivets 8 1/2" Lap of plates or width of butt straps 16 1/16"  
 Per centages of strength of longitudinal joint rivets 81.0 Working pressure of shell by rules 181 lbs Size of manhole in end 16 x 12" plate 80.8  
 Size of compensating ring end flanged in No. and Description of Furnaces in each boiler 4 Purnis arched Material Steel Outside diameter 44 1/2"  
 Length of plain part top 35" crown 35" Description of longitudinal joint welded No. of strengthening rings none bottom 64" bottom 64"  
 Working pressure of furnace by the rules 183 lbs Combustion chamber plates: Material Steel Thickness: Sides 11/16" Back 11/16" Top 11/16" Bottom 29/32"  
 Pitch of stays to ditto: Sides 9 3/8" x 9 1/2" Back 10 x 8 3/4" Top 9 3/4" x 9 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 183 lbs  
 Material of stays Steel Diameter at smallest part 1 1/2" eff Area supported by each stay 87.5 sq in Working pressure by rules 181 lbs End plates in steam space:  
 Material Steel Thickness 1 1/32" Pitch of stays 21 x 22 3/8" How are stays secured DN TW Working pressure by rules 181 lbs Material of stays Steel  
 Diameter at smallest part 3 3/8" eff Area supported by each stay 470 sq in Working pressure by rules 180 lbs Material of Front plates at bottom Steel  
 Thickness 7/8" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 14 1/2" dbl Working pressure of plate by rules 185 lbs  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 11 1/4"  
 Pitch across wide water spaces 14 1/2" doubled Working pressures by rules 216 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 10 x 4 1/2" 2 plates Length as per rule 34 1/4" Distance apart 9 1/2" Number and pitch of Stays in each 3-9 3/8"  
 Working pressure by rules 183 lbs 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 holes - Pitch of rivets - Working pressure of shell by rules - Diameter of flue - Material of flue plates - Thickness -  
 If 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 -

2010-4/12/09 - Copyable Intk.



**DONKEY BOILER**— No. 1 Description *Mult., Single ended, two plain furnaces*  
 Made at *Wallsend* By whom made *North Eastern Marine Eng<sup>g</sup>* When made *1-6-00* Where fixed *Main deck*  
 Working pressure *100 lbs* tested by hydraulic pressure to *200 lbs* No. of Certificate *5796* Fire grate area *33 sq ft* Description of safety valves *Direct spring*  
 No. of safety valves *2* Area of each *5.93 sq ft* Pressure to which they are adjusted *100 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*  
 Dia. of donkey boiler *10-4 3/4* Length *10-0* Material of shell plates *Steel* Thickness *5/8* Range of tensile strength *27-32 TONS* Descrip. of riveting long seams *double butt straps, d 7/8* Dia. of rivet holes *5/8* Whether punched or drilled *drilled* Pitch of rivets *4 1/8*  
 Width of straps *9 1/8* Per centage of strength of joint Rivets *82.0* Thickness of shell plates *2 1/2* Radius of do. *19 1/2 x 16 1/2*  
 Dia. of stays *2 1/4* Diameter of furnace *Top 36 Bottom 36* Length of furnace *6-3* Thickness of furnace plates *1/2* Description of joint *DRS, SR* Thickness of *Comb Chambr* plates *9/16* Stayed by *1 1/2 stay, 10 x 9 1/8 tube* Working pressure of shell by rules *109 7/8*  
 Working pressure of furnace by rules *101 7/8* Diameter of *water tubes 3 1/4* Thickness of *water tubes 3/4* Thickness of *stay tubes 1/4*

**SPARE GEAR.** State the articles supplied:— *Two top two bottom end bolts, two main bearing bolts, one set of coupling bolts, one set of feed one set of bilge pump valves, one set of piston springs, 1/3 crank shaft, one air & circulating pump rod & bucket, one propeller shaft, four loose blades & a quantity of assorted bolts & iron.*

The foregoing is a correct description,

**THE NORTH EASTERN MARINE ENGINEERING CO. LD**

Manufacturer.

Dates of Survey while building  
 During progress of work in shops: *1199 July 11 Aug 3. 1900. 29. 11 Dec 5. 12. 19. 26. 1901. 2. 5. 10. 12. 20. 23. Dec 2. 6. 12. 15. 21. 1900. Jan 14. 18. 22. 24. Feb 11. 15. 20*  
 During erection on board vessel: *22. 25. 17. 12. 12. 19. 23. 26. 27. 28. Apr 1. 25. 11. 19. 22. 26. 27. May 10. 25. June 1. 5. 12. 14. 19. 25. July 5. 19. 27. Aug 25. 10. 16. 20*  
 Total No. of visits *67*

Is the approved plan of main boiler forwarded herewith *yes*  
 " " " donkey " " " *yes*

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

This vessel has been fitted with Ordes patent burners to burn fuel in the main boilers & donkey boiler. A drawing is sent with this report shewing Ordes system, a sketch of the burner is enclosed. Three Worthington duplex pumps 4" x 3 1/4" x 4" are fitted the stokehold to pump oil fuel from tanks oil bilges, up to be or overboard as required. The pumping arrangement to oil fuel tanks oil bilges is distinctly separate from the ordinary pumping arrangement of the vessel. Two evaporators of a capacity of 24 tons per day each have been fitted to make up the loss of steam used in spraying the oil. The boilers have been covered all over with 3" of non-conducting composition so as to insulate the boilers from the oil fuel tanks & bilges. The boilers were tried under steam with oil fuel, the burners being afterwards removed & the boilers refitted to burn coal. The vessel left here burning coal, but it is intended to refit the oil fuel burners at Suez about the end of September.

The machinery of this vessel has been constructed & fitted on board under special survey the workmanship is sound & good. The machinery has been tried under steam as required by the Rules of good satisfactory, which in my opinion renders the vessel eligible for the record of + L MC 8-00 in the Register Book.

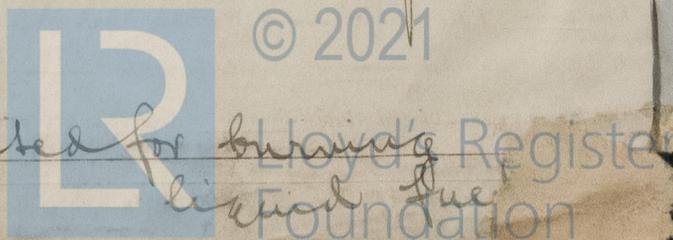
The amount of Entry Fee. £ 3 : : : When applied for.  
 Special .. £ 44 6 : : : 28. AUG 1900.  
 Donkey Boiler Fee .. £ . : : :  
 Travelling Expenses (if any) £ . : : : 1. 9. 00

*Robert Haig*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. 31 AUG 1900**

Assigned

+ L MC 8 00  
 MACHINERY CERTIFICATE WRITTEN



Certificate (if required) to be sent to Newcastle-on-Tyne.