

REPORT ON MACHINERY.

No. 61988

MON. MAR. 25. 1912

Date of writing Report 19... When handed in at Local Office 19... Port of **NEWCASTLE ON TYNE.**
 No. in Survey held at Newcastle Date, First Survey 10th Apr 1911 Last Survey 9th Mar 1912
 Reg. Book. 62 on the Machinery of the S.S. "Birna" (Number of Visits 59)
 Master Swan Hunter & W. Richardson Tons { Gross 4896
 Built at Newcastle By whom built Wallsend Shipway & Eng Co. Ltd When built 1912
 Engines made at Newcastle By whom made Wallsend Shipway & Eng Co. Ltd
 Boilers made at " By whom made " when made 1912
 Registered Horse Power 411 Owners Rotterdamsche Lloyd Port belonging to Rotterdam
 Nom. Horse Power as per Section 28 411 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted Yes

57219 48721

ENGINES, &c.—Description of Engines Triple No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 26" 42 1/2" & 70" Length of Stroke 48" Revs. per minute 73 Dia. of Screw shaft 15.39 as per rule 14.668 Material of steel
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube no Is the after end of the liner made water tight
 in the propeller boss no If the liner is in more than one length are the joints burned no 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 no If two
 liners are fitted, is the shaft lapped or protected between the liners Cedynall Gland Length of stern bush 5'-4"
 Dia. of Tunnel shaft as per rule 12.991 Dia. of Crank shaft journals as per rule 13.65 Dia. of Crank pin 13 3/4" Size of Crank webs 9 1/2" X 2 1/2" Dia. of thrust shaft under
 collars 13 3/4" Dia. of screw 18'-0" Pitch of Screw 17'-3" No. of Blades 4 State whether moveable no Total surface 1045
 No. of Feed pumps 2 Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 4 1/4" Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 2 Sizes of Pumps 10" X 10" X 10" & 7 1/2" X 5" X 6" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 4 of 3 1/2" dia In Holds, &c. 2 of 3 1/2" in each hold, 2 of
3 1/2" in deep tank & 1 of 3" in tunnel well.
 No. of Bilge Injections 1 sizes 7 1/2" Connected to condenser, or to circulating pump pumps 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 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 forward bilge suction How are they protected iron 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 19/1/12 of Stern Tube 19/1/12 Screw shaft and Propeller 19/1/12, 26/1/12
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Main deck

15.39
Shaft
17.0
Propeller

OILERS, &c.—(Letter for record S) Manufacturers of Steel J. & S. Spence & Sons
 Total Heating Surface of Boilers 5550 Is Forced Draft fitted Yes No. and Description of Boilers 2 Single-ended
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 29/6/11 No. of Certificate 8157
 Can each boiler be worked separately Yes Area of fire grate in each boiler 64 No. and Description of Safety Valves to
 each boiler 2 direct spring Area of each valve 9.6 Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 22" Mean dia. of boilers 15'-9 7/8" Length 12'-0" Material of shell plates steel
 Thickness 19/32" Range of tensile strength 29-32 1/2 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams d. r. lap
 long. seams d. r. butt Diameter of rivet holes in long. seams 1 1/32" Pitch of rivets 9" Lap of plates or width of butt straps 19 3/4"
 Percentages of strength of longitudinal joint rivets 91.26 Working pressure of shell by rules 189 lbs Size of manhole in shell 16" X 12"
 Size of compensating ring flanged No. and Description of Furnaces in each boiler 3 Horizontal Material steel Outside diameter 49 7/8"
 Length of plain part top 19 3/2" Thickness of plates crown 19/32" Description of longitudinal joint welded No. of strengthening rings no
 Working pressure of furnace by the rules 189 lbs Combustion chamber plates: Material steel Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 1 1/32"
 Pitch of stays to ditto: Sides 7 3/4" X 7 7/8" Back 7 1/2" X 8" Top 7 3/4" X 7 1/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 225 lbs
 Material of stays steel Diameter at smallest part 1.45 Area supported by each stay 68 Working pressure by rules 189 lbs End plates in steam space:
 Material steel Thickness 1 3/16" Pitch of stays 7 5/8" X 17" How are stays secured d. nuts Working pressure by rules 210.8 lbs Material of stays steel
 Diameter at smallest part 7.24 Area supported by each stay 299 Working pressure by rules 251 lbs Material of Front plates at bottom steel
 Thickness 1 Material of Lower back plate steel Thickness 7/8" Greatest pitch of stays 15" X 8" Working pressure of plate by rules 183 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" Back 25/32" Mean pitch of stays 7 1/8"
 Pitch across wide water spaces 13 1/4" Working pressures by rules 204.5 lbs Girders to Chamber tops: Material steel Depth and
 thickness of girder at centre 8 3/4" X 1 1/2" Length as per rule 33 1/2" Distance apart 7 3/4" Number and pitch of stays in each 3, 7 3/4"
 Working pressure by rules 185 lbs Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked
 separately Yes Diameter no Length no Thickness of shell plates no Material no Description of longitudinal joint no Diam. of rivet
no Pitch of rivets no Working pressure of shell by rules no Diameter of flue no Material of flue plates no Thickness no
 stiffened with rings no Distance between rings no Working pressure by rules no End plates: Thickness no How stayed no
 Working pressure of end plates no Area of safety valves to superheater no Are they fitted with easing gear no

Lloyd's Register
Foundation
W1225-2012

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 casing 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:— 2 top end & 2 bottom end bolts, 2 main bearing bolts, 1 set of coupling bolts, set of feed & bilge pump valves, 1 propeller shaft, 1 propeller, piston bolts, springs, assorted nuts bolts and a quantity of assorted iron &c.

The foregoing is a correct description, FOR THE WALLSEND SLIPWAY & ENGINEERING CO., LIMITED.

Manufacturer. *A. Laing* DIRECTOR

Dates of Survey while building	During progress of work in shops - -	1911	Apr. 10. 22. May. 2. 8. 16. 18. 23. 25. 29. Jun. 2. 8. 9. 14. 26. 28. 29. Jul. 3. 4. 10. 13. 14. 24. 26. 31. Aug. 8. 9. 17. 29.	
		During erection on board vessel - -	1912	Jan. 3. 4. 5. 6. 10. 15. 17. 18. 19. 22. 24. 26. 29. Dec. 12. 16. 20. 22. 27. Mar. 2. 9. 11. 18. 25. Nov. 6. 17. Dec. 15. 19. 29.
			Total No. of visits	59

Is the approved plan of main boiler forwarded herewith *Yes*

" " " donkey " " " *Yes*

Dates of Examination of principal parts—Cylinders *28/6/11* Slides *16/5/11* Covers *2/6/11* Pistons *26/7/11* Rods *14/7/11*

Connecting rods *14/7/11* Crank shaft *13/7/11* Thrust shaft *13/7/11* Tunnel shafts _____ Screw shaft *6/1/12* Propeller *18/10/11*

Stern tube *17/11/11* Steam pipes tested *23/8/11* Engine and boiler seatings *19/1/12* Engines holding down bolts *20/2/12*

Completion of pumping arrangements *9/3/12* Boilers fixed *20/2/12* Engines tried under steam *22/2/12*

Main boiler safety valves adjusted *22/2/12* Thickness of adjusting washers *Slide P 3/8 S 3/8 Port P 1/2 5 5/16*

Material of Crank shaft *Steel* Identification Mark on Do. *13/7/11* Material of Thrust shaft *Steel* Identification Mark on Do. *13/7/11*

Material of Tunnel shafts *Steel* Identification Marks on Do. *17/8/11* Material of Screw shafts *Steel* Identification Marks on Do. *15/1/12*

Material of Steam Pipes *Lap welded iron* Test pressure *540 lbs.*

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

The machinery of this vessel has been built under special survey, the materials used are good, and the workmanship is satisfactory, it has been properly fitted on board and secured, and the engines have been tried under full steam. In my opinion the vessel is eligible for the record of L.M.C. 3,12.

Certificate (if required) to be sent to NEWCASTLE ON TYNE

The amount of Entry Fee .. £ 3 : _____

Special £ 40 : 11 : _____

Donkey Boiler Fee £ 2 : 2 : _____

Travelling Expenses (if any) £ : _____

Committee's Minute

Assigned *+ L.M.C. 3.12*

F.D.

When applied for, **MAR 23 1912**

When received, *22-7-12 paid 20/4/12*

TUE. APR. 2 1912

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



Rpt. 5

Date of visit

No. in Reg. Book

Master

Engines

Boiler

Registered

MULTI

(Letter for

Boilers

No. of Cer

safety valve

Are they fit

Smallest di

Material of

Descrip. of

Lap of plat

rules 106

boiler 2

Description

plates: Mat

Top 7x7

smallest part

Pitch of stay

Area support

Lower back p

Pitch of tube

water spaces

girder at cen

Working pres

separately

holes

If stiffened wi

Working pres.

Dates of Survey while building

GENERAL

Construct

are bo

and

Survey Fee

Travelling

Committee

Assigned