

# REPORT ON MACHINERY.

Port of Newcastle-on-Tyne

MUN. 16 MAR 1903

Received at London Office

No. in Survey held at Newcastle-on-Tyne Date, first Survey July 14 1902 Last Survey 2<sup>nd</sup> March 1903  
Reg. Book. 30 Sep on the S.S. "Hektos" (Number of Visits 39) March 1<sup>st</sup> 1903  
Gross 2053.78  
Net 1336.21

Master V. Boxstrom Built at Middlesbrough By whom built Miss Crayford & Co When built 1902

Engines made at Newcastle By whom made North Eastern Mar. Eng. Co when made 1902

Boilers made at Newcastle By whom made North Eastern Mar. Eng. Co when made 1902

Registered Horse Power \_\_\_\_\_ Owners Finska Lloyd Angf. Aktiebol Port belonging to Helsingfors

Nom. Horse Power as per Section 28 217 Is Refrigerating Machinery fitted No Is Electric Light fitted Yes for cargo purposes only

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3  
Dia. of Cylinders 21" 34" 56" Length of Stroke 34" Revs. per minute 75 Dia. of Screw shaft 7.4" as per rule 12.2" as fitted 12.4" Lgth. of stern bush 4-3"  
Dia. of Tunnel shaft 10.2" as per rule 10.7" as fitted 10.4" Dia. of Crank shaft journals 10.3" as fitted 10.3" Dia. of Crank pin 10.3" Size of Crank webs 20 1/2 x 6 1/2 Dia. of thrust shaft under collars 10 3/4" Dia. of screw 14-6" Pitch of screw 14-6" No. of blades 4 State whether moveable No Total surface 635

No. of Feed pumps 2 Diameter of ditto 3 1/2" Stroke 18" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 18" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps 6 x 5 1/2 x 8 + 6 x 4 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Five 3" one 4" under valves In Holds, &c. Two of 3" in each hold

One of 3" in tunnel.

No. of bilge injections 1 sizes 4" Connected to condenser or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size 4 1/2 3"

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 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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock New Vessel Is the screw shaft tunnel watertight See ship report

Is it fitted with a watertight door Yes worked from Cylinder Grating

BOILERS, &c.— (Letter for record 5) Total Heating Surface of Boilers 3542 sq Is forced draft fitted No

No. and Description of Boilers Two simple Ended Working Pressure 165 lbs Tested by hydraulic pressure to 330 lbs

Date of test 4/11/02 Can each boiler be worked separately Yes Area of fire grate in each boiler 54 sq No. and Description of safety valves to each boiler Two Spring valves Area of each valve 7.07 sq Pressure to which they are adjusted 170 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 9" baffle plate Mean dia. of boilers 13-9 3/4" Length 10-6" Material of shell plates S

Thickness 1 1/2" Range of tensile strength 29-32 Are they welded or flanged No Descrip. of riveting: cir. seams Lap at long. seams W. R. & d. riv.

Diameter of rivet holes in long. seams 1 7/16" Pitch of rivets 8 1/8" Top of plates or width of butt straps 15 1/4"

Percentages of strength of longitudinal joint rivets 84 Working pressure of shell by rules 167 Size of manhole in shell 16 x 12

Size of compensating ring Flanged in No. and Description of Furnaces in each boiler 3 Plain Material S Outside diameter 39"

Length of plain part top 6-6" bottom 7-0" Thickness of plates crown 3 23/32" bottom 3 32" Description of longitudinal joint d. n. r. w. No. of strengthening rings 5

Working pressure of furnace by the rules 168 Combustion chamber plates: Material S Thickness: Sides 1/2" Back 1/2" Top 1/2" Bottom 1"

Pitch of stays to ditto: Sides 10 x 9 1/2 Back 10 x 9 1/2 Top 10 x 9 1/2 If stays are fitted with nuts or riveted heads None Working pressure by rules 172

Material of stays S Diameter at smallest part 1 1/2" Area supported by each stay 95 sq Working pressure by rules 169 End plates in steam space:

Material S Thickness 1 3/32" Pitch of stays 24 3/4 x 24" How are stays secured d. n. r. w. Working pressure by rules 170 Material of stays S

Diameter at smallest part 9.82" Area supported by each stay 594 sq Working pressure by rules 165 Material of Front plates at bottom S

Thickness 2" Material of Lower back plate S Thickness 7/8" Greatest pitch of stays 14 1/2" Working pressure of plate by rules 170

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates S Thickness: Front 3/4" Back 3/4" Mean pitch of stays 9"

Pitch across wide water spaces 14 1/2" Working pressures by rules 384 Girders to Chamber tops: Material S Depth and

thickness of girder at centre 8 1/2 x 1 1/2" Length as per rule 30' Distance apart 10" Number and pitch of Stays in each 2. 9 1/2"

Working pressure by rules 174 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 rivet

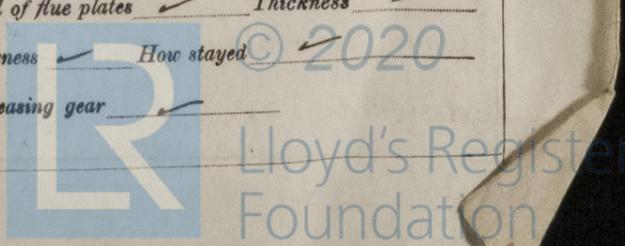
holes Yes Pitch of rivets Yes Working pressure of shell by rules Yes Diameter of flue Yes Material of flue plates Yes Thickness Yes

If 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

If not, state whether, and when, one will be sent? In a Report on the Hull of the Ship

1610-4-02-Copy



**DONKEY BOILER**— No. *One* Description *Cyl. mult. single ended, 2 plain furnaces*  
 Made at *Stockton* By whom made *Riley Bros* When made *22-10-02* Where fixed *Stoke hold*  
 Working pressure *90 lb* tested by hydraulic pressure to *180 lb* No. of Certificate *2863* Fire grate area *21 1/2* Description of safety valves *direct spring*  
 No. of safety valves *two* Area of each *5.94* Pressure to which they are adjusted *90 lb* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *8'-0"* Length *8'-0"* Material of shell plates *steel* Thickness *1/2"* Range of tensile strength *27/32* Descrip. of riveting long. seams *D.R. D Butt Strap* Dia. of rivet holes *1/2"* Whether punched or drilled *drilled* Pitch of rivets *3 1/2"*  
 Lap of *Butt St* *9 1/2"* Per centage of strength of joint *Rivets 88* Thickness of shell *end* plates *3/4"* Radius of do. *✓* No. of Stays to do. *4"*  
 Dia. of stays *1 1/2" off iron* Diameter of furnace Top *2'-5"* Bottom *✓* Length of furnace *6'-10"* Thickness of furnace plates *1 1/2"* Description of joint *Welded* Thickness of furnace crown plates *1 1/2" x 7/8"* Stayed by *1 1/2" off S.St. nuts 8 x 8" pitch* Working pressure of shell by rules *100 lb*  
 Working pressure of furnace by rules *98 lb* Diameter of uptake *tube 3"* Thickness of uptake plates *7 3/4" B 7/8"* Thickness of *stay* water tubes *5/8"*

**SPARE GEAR.** State the articles supplied:— *Two top end and two bottom end connecting rod bolts and nuts, two main bearing bolts, one set coupling bolts, one set fork and bill pump valves, assorted bolts and nuts, some of various sizes.*

The foregoing is a correct description,

Manufacturer. *J. Harrison*

Dates of Survey while building  
 During progress of work in shops: *1902. July 11. Aug. 18, 21, 22, 25. Sep. 2, 12, 17, 22. Oct. 1, 7, 9, 13, 21, 22. Nov. 4, 10, 13, 14, 21, 22.*  
 During erection on board vessel: *1902. Oct 21, 30. Nov 3, 7, 10, 11, 24, 27, 28. Dec. 24, 28. 1903. Jan 7, 9. Mar 2, 11.*  
 Total No. of visits *Nov. 20. Feb 19* Is the approved plan of main boiler forwarded herewith *no*  
 " " " donkey " " " *no*

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

Material of screw shaft *Iron* 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 *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 *yes*

*The machinery of this vessel has been constructed under special survey, the materials and workmanship are sound and good and under the vessel elgible in our opinion to have record of T.E.M.C. 3-03.*

*The electric light report will be forwarded as soon as received back from the electricians.*

It is submitted that this vessel is eligible for THE RECORD. - L.M.C. 3-03.

*16.3.03*

*G. A. H. R. D. Shilston*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee. . . £ *2* : : : When applied for, *2. DEC. 1902*  
 Special . . . . . £ *30 17* : : :  
 Donkey Boiler Fee . . . . . £ : : : : When received, *17. 12. 1902*  
 Travelling Expenses (if any) £ : : : : *no*

Committee's Minute *TUES. 17 MAR 1903*

Assigned *+ L M C 3 03*

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

