

# REPORT ON MACHINERY.

Port of *Newcastle-on-Tyne*

THUR. 21 AUG 1902

Received at London Office

No. in Survey held at *Newcastle* Date, first Survey *Sep 12 '01* Last Survey *Aug 11 1902*  
Reg. Book. on the *SS. 'Duna'* (Number of Visits *31*)

Master *J. Mulatto* Built at *Newcastle* By whom built *W. Dobson & Co.* Tons { Gross *2916*  
Net *1842.* 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 *Adria Royal Hung. S.H. Co.* Port belonging to *Trieste*  
Nom. Horse Power as per Section 28 *294* Is Refrigerating Machinery fitted *No* Is Electric Light fitted *No*

ENGINES, &c.—Description of Engines *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*  
Dia. of Cylinders *21 1/2, 37 1/2, 63* Length of Stroke *42* Revs. per minute *70* Dia. of Screw shaft *13 1/2* Lgth. of stern bush *4'-9"*  
Dia. of Tunnel shaft *11 1/2* Dia. of Crank shaft journals *12 1/2* Dia. of Crank pin *12 1/2* Size of Crank webs *14 1/2 x 6 1/2* Dia. of thrust shaft under collars *12 1/2* Dia. of screw *15-11* Pitch of screw *17-0* No. of blades *4* State whether moveable *No* Total surface *765*

No. of Feed pumps *2* Diameter of ditto *3 1/2* Stroke *22* Can one be overhauled while the other is at work *No*

No. of Bilge pumps *2* Diameter of ditto *3 1/2* Stroke *22* Can one be overhauled while the other is at work *No*

No. of Donkey Engines *2* Sizes of Pumps *7x9x9, 9 3/4 x 4 x 7* No. and size of Suctions connected to both Bilge and Donkey pumps  
in Engine Room *Four 3" Two 5"* In Holds, &c. *Two in each hold 3" one in trunk well 3"*

No. of bilge injections *1* sizes *5 1/2* Connected to condensers, or to circulating pump *No* Is a separate donkey suction fitted in Engine room & size *4 1/2 5"*

Are all the bilge suction pipes fitted with roses *No* Are the roses in Engine room always accessible *No* Are the sluices on Engine room bulkheads always accessible *No*

Are all connections with the sea direct on the skin of the ship *No* Are they Valves or Cocks *Both*

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates *No* 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 *No* Are the blow off cocks fitted with a spigot and brass covering plate *No*

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 *No*

Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges *No*

When were stern tube, propeller, screw shaft, and all connections examined in dry dock *Nov* Is the screw shaft tunnel watertight *No*

Is it fitted with a watertight door *No* worked from *Upper platform*

BOILERS, &c.— (Letter for record *✓*) Total Heating Surface of Boilers *4630 sq* Is forced draft fitted *No*

No. and Description of Boilers *Two Simple Endless* Working Pressure *200 lbs* Tested by hydraulic pressure to *400 lbs*

Date of test *20/6/02* Can each boiler be worked separately *No* Area of fire grate in each boiler *58 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 *205 lbs* Are they fitted with easing gear *No*

Smallest distance between boilers or uptakes and bunkers or woodwork *12"* Mean dia. of boilers *15-1 1/4"* Length *11-6"* Material of shell plates *S*

Thickness *1 5/16"* Range of tensile strength *29-32* Are they welded or flanged *No* Descrip. of riveting: cir. seams *Lap double long, seams d.b. to riv.*

Diameter of rivet holes in long. seams *1 13/32* Pitch of rivets *10"* Lap of plates or width of butt straps *20 7/8"*

Percentages of strength of longitudinal joint rivets *88* Working pressure of shell by rules *202* Size of manhole in shell *16 x 7 1/2*

Size of compensating ring *Flanged in* No. and Description of Furnaces in each boiler *3 Brass C* Material *S* Outside diameter *49"*

Length of plain part top *—* bottom *—* Thickness of plates crown *3 21/32* bottom *3 32* Description of longitudinal joint *Welded* No. of strengthening rings *✓*

Working pressure of furnace by the rules *214* Combustion chamber plates: Material *S* Thickness: Sides *1/16* Back *1/16* Top *1/16* Bottom *1 1/4"*

Pitch of stays to ditto: Sides *9 1/2 x 8* Back *9 1/2 x 8* Top *9 1/2 x 8* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *211*

Material of stays *Iron* Diameter at smallest part *1 5/8"* Area supported by each stay *76 sq* Working pressure by rules *200* End plates in steam space:

Material *S* Thickness *1 7/16* Pitch of stays *19 7/8 + 21 5/8* How are stays secured *d.n.o.w.* Working pressure by rules *202* Material of stays *S*

Diameter at smallest part *3 1/2* Area supported by each stay *412* Working pressure by rules *202* Material of Front plates at bottom *S*

Thickness *1 5/16* Material of Lower back plate *S* Thickness *1 5/16* Greatest pitch of stays *14 1/2* Working pressure of plate by rules *230*

Diameter of tubes *3 1/4* Pitch of tubes *4 1/2 + 4 3/8* Material of tube plates *S* Thickness: Front *1 5/16* Back *7/8"* Mean pitch of stays *8 7/8"*

Pitch across wide water spaces *14 1/2"* Working pressures by rules *310* Girders to Chamber tops: Material *S* Depth and

Thickness of girder at centre *9 5/8 + 2"* Length as per rule *34 1/2"* Distance apart *9 1/2"* Number and pitch of Stays in each *3 8"*

Working pressure by rules *210* 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 *✓*



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**DONKEY BOILER**— No. *Two* Description *Mundiths Patent*  
 Made at *Stratton* By whom made *Riley Bros.* 2722 When made *7/4/02* Where fixed *Upper Deck*  
 Working pressure *90 lbs* tested by hydraulic pressure to *180 lbs* No. of Certificate *2767* Fire grate area *22 sq* Description of safety valves *Spring*  
 No. of safety valves *2* each Area of each *3.98 sq* Pressure to which they are adjusted *90 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *6-6"* Length *13-0"* Material of shell plates *S* Thickness *1/2"* Range of tensile strength *27-32* Descrip. of riveting long. seams *Cap donkey* Dia. of rivet holes *15/16"* Whether punched or drilled *Drilled* Pitch of rivets *3 1/2"*  
 Lap of plating *4 1/2"* Per centage of strength of joint *71.1* Thickness of shell crown plates *17/32"* Radius of do. *Dished* No. of Stays to do. *✓*  
 Dia. of stays *✓* Diameter of furnace Top *4-5 1/2"* Bottom *5-6 5/8"* Length of furnace *30"* Thickness of furnace plates *5/8"* Description of joint *Cap finish* Thickness of furnace crown plates *3/8"* Stayed by *Dished* Working pressure of shell by rules *97*  
 Working pressure of furnace by rules *110* Diameter of uptake *3"* Thickness of uptake plates *19/32" dished* Thickness of water tubes *5/16"*

SPARE GEAR. State the articles supplied:— *Two top end & two bottom end cam end bolts and nuts, two main bearing bolts, one at coupling bolts, one set feed & little pump valves, assorted bolts & nuts, Iron of various sizes.*

The foregoing is a correct description,  
 Manufacturer.

Dates During progress of work in shops— *1901. Sep. 12. Nov. 6. 1902. Jan. 24 & 28. Feb. 17 & 26. Mch. 5, 10 & 13. 20 & 27. Apl. 7, 9, 14, 22 & 30. May 6, 22 & 27. June 5, 12 & 20.*  
 of Survey while building During erection on board vessel *July 3, 7, 8, 11, 15, 17, 29. Aug. 7, 11*  
 Total No. of visits *31.* Is the approved plan of main boiler forwarded herewith *Yes*  
 " " " 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 *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 *✓*

*The machinery of this vessel has been constructed under special survey, the materials and workmanship are sound and good and under the vessel class in my opinion to have record of L.M.C. 702*

It is submitted that this vessel is eligible for THE RECORD L.M.C. 8:02.

*21.8.02*  
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The amount of Entry Fee... £ *2* : : : When applied for,  
 Special... £ *34 14* : : : *14.8.02*  
 Donkey Boiler Fee... £ : : : When received,  
 Travelling Expenses (if any) £ : : : *21.8.02*

*G. A. Drake*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. 22 AUG 1902**

Assigned

*+ L.M.C. 8, 02*



Newcastle-on-Tyne.

Certificate (if required) to be sent to

(The Surveyors are requested not to write on or below the space for Committee's Minute.)