

REPORT ON MACHINERY.

Port of **NEWCASTLE-ON-TYNE**

Received at London Office

MON 18 SEP 1893

No. in Survey held at **South Shields**
Reg. Book. **Suppl.**

Date, first Survey **Mar 1st**

Last Survey **Sept 16 1893**

(Number of Visits **3**)

8 on the **Screw Steamer "Cayo Romano"**

Tons } Gross **2689.52**
Net **1734.86**

Master **J. H. Wiggory** Built at **S. Shields** By whom built **J. Readhead & Sons** When built **1893**

Engines made at **S. Shields** By whom made **J. Readhead & Sons** when made **1893**

Boilers made at **S. Shields** By whom made **J. Readhead & Sons** when made **1893**

Registered Horse Power **300** Owners **E. Bigland & Co.** Port belonging to **London**

Nom. Horse Power as per Section 28 **282**

ENGINES, &c. — Description of Engines **Triple expansion** No. of Cylinders **3**

Diameter of Cylinders **24" 40" 65"** Length of Stroke **42"** Revolutions per minute **60** Diameter of Screw shaft **as per rule 11.37" as fitted 12.6"**

Diameter of Tunnel shaft **as per rule 10.8" as fitted 11.5"** Diameter of Crank shaft journals **12"** Diameter of Crank pin **12"** Size of Crank webs **Fraser patent**

Diameter of screw **16'3"** Pitch of screw **19'** No. of blades **4** State whether moveable **No** Total surface **63 sq ft**

No. of Feed pumps **2** Diameter of ditto **3 1/2"** Stroke **24"** Can one be overhauled while the other is at work **Yes**

No. of Bilge pumps **2** Diameter of ditto **4 3/4"** Stroke **24"** Can one be overhauled while the other is at work **Yes**

No. of Donkey Engines **2** Sizes of Pumps **(6x4x6) (13 1/2 x 13 x 9)** No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room **Thru. On port 3" On St. 3" On Centre 3 1/2" In Holds, &c. Fore hold, two 3" Main, two 3" After two 3" After well, one 2 1/2" Tanks, fore, one 3" Main, thru 2 1/2 x 3" E.T. thru 3 1/2" After, main, one 3 1/2" After, one 2 1/2"**

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

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 **Yes** Is the screw shaft tunnel watertight **Yes**

Is it fitted with a watertight door **Yes** worked from **Deck**

BOILERS, &c. — (Letter for record **Y**) Total Heating Surface of Boilers **4367 sq ft**

No. and Description of Boilers **Two Cylindrical Single ended** Working Pressure **160 lb** Tested by hydraulic pressure to **320 lb**

Date of test **19.7.93** Can each boiler be worked separately **Yes** Area of fire grate in each boiler **57.75 sq ft** No. and Description of safety valves to each boiler **Two Spring** Area of each valve **7.07** Pressure to which they are adjusted **165 lb** Are they fitted with easing gear **Yes** Smallest distance between boilers or uptakes and bunkers or woodwork **12"** Mean diameter of boilers **15'3"**

Length **16'4"** Material of shell plates **Stal** Thickness **1 7/16"** Description of riveting: circum. seams **Lap double long. seams D.B. table**

Diameter of rivet holes in long. seams **1 3/8"** Pitch of rivets **8.5** Lap of plates or width of butt straps **2 1/4"**

Per centages of strength of longitudinal joint **85.2** Working pressure of shell by rules **160.3 lb** Size of manhole in shell **16" x 12"**

Size of compensating ring **6 x 1 7/16"** No. and Description of Furnaces in each boiler **Three Ribbed** Material **Stal** Outside diameter **43 1/4"**

Length of plain part **top 1 1/2" bottom 1 1/2"** Thickness of plates **top 1 1/2" bottom 1 1/2"** Description of longitudinal joint **welded** No. of strengthening rings **1**

Working pressure of furnace by the rules **160.9** Combustion chamber plates: Material **Stal** Thickness: Sides **5/8"** Back **5/8"** Top **5/8"** Bottom **7/8"**

Pitch of stays to ditto: Sides **8 1/2 x 8 3/8"** Back **9 x 8 5/8"** Top **8 x 8 5/8"** If stays are fitted with nuts or riveted heads **Nuts** Working pressure by rules **166.6 lb**

Material of stays **iron** Diameter at smallest part **1 1/2"** Area supported by each stay **77.625** Working pressure by rules **140 lb** End plates in steam space: Material **Stal** Thickness **1 1/2"** Pitch of stays **17 1/2 x 17"** How are stays secured **D.N.** Working pressure by rules **162 lb** Material of stays **Stal**

Diameter at smallest part **2 7/8"** Area supported by each stay **299.6** Working pressure by rules **178 lb** Material of Front plates at bottom **Stal**

Thickness **3/4"** Material of Lower back plate **Stal** Thickness **3/8"** Greatest pitch of stays **11 1/4"** Working pressure of plate by rules **180 lb**

Diameter of tubes **3 1/2"** Pitch of tubes **4 3/4"** Material of tube plates **Stal** Thickness: Front **3/4"** Back **3/4"** Mean pitch of stays **10 5/8"**

Pitch across wide water spaces **14"** Working pressures by rules **182 lb** Girders to Chamber tops: Material **Stal** Depth and thickness of girder at centre **8" x 1 1/2"** Length as per rule **28"** Distance apart **8 5/8"** Number and pitch of Stays in each **2 - 8"**

Working pressure by rules **190 lb** 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**

1110-21377M

DONKEY BOILER— Description *Cylindrical multitubular simple end*
 Made at *S. Shields* By whom made *J. Readhead & Sons* When made *8.5.93* Where fixed *Stockwell*
 Working pressure *80 lb* tested by hydraulic pressure to *160 lb* No. of Certificate *4196* Fire grate area *20 sq ft* Description of safety valves *Spring*
 No. of safety valves *1* Area of each *2.5'* Pressure to which they are adjusted *80 lb* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *9'0"* Length *9'0"* Material of shell plates *steel* Thickness *9/16"*
 Description of riveting long seams *L. D. Riv* Diameter of rivet holes *5/16"* Whether punched or drilled *drilled* Pitch of rivets *3*
 Lap of plating *4 1/2"* Per centage of strength of joint Rivets *69.5* Thickness of ~~shell~~ plates *3/4"* Radius of do. *✓* No. of Stays to do. *6-18x*
 Dia. of stays. *1 1/4"* Diameter of furnaces *34"* Bottom *✓* Length of furnace *5'9"* Thickness of furnace plates *7/16"* Description of joint *Lap simple* Thickness of ~~furnace~~ plates *1/2"* Stayed by *1 5/8" stays 9 x 9 1/2" pitch* Working pressure of shell by rules *83 lb*
 Working pressure of furnace by rules *129 lb* Diameter of uptake *✓* Thickness of ~~uptake~~ plates *1/4" x 3/4"* Thickness of ~~water~~ tubes *10. B. W. G.*

SPARE GEAR. State the articles supplied:— *Two top end bolts & nuts, two bottom end bolts & nuts, two main bearing bolts & nuts, one set of shaft coupling bolts & nuts, propeller shaft & propeller, one set of feed & bilge pump valves, one boiler check-valve & seat, one safety-valve spring bolt nut & cover*
 The foregoing is a correct description, — *assorted*—

John Readhead & Sons Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has been specially ^{Surveyed} during construction the materials and workmanship good, and renders the vessel eligible in our opinion to have the record + L. M. C. 9.93 in the Register Book of the Society.*

Accepted

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 9.93 —
Prob
 18/9/93 —

MACHINERY CERTIFICATE
 WRITTEN. *Newcastle Office*

Certificate (if required) to be sent to
 The amount of Entry Fee. . . £ 2 : : : When applied for,
 Special £ 34 : 2 : : *6.4.93*
 Donkey Boiler Fee £ : : : : When received,
 Travelling Expenses (if any) £ : : : : *8.4.93*

R. F. Morton & Wm Morrison
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **TUES. 19 SEP 1893**
 Assigned *+ L.M.C. 9.93*



The Surveys are requested and to write on or below the space for Committee's Minute.