

# REPORT ON MACHINERY.

Port of Sunderland

Received at London Office SAT. APR 27 1901

No. in Survey held at Sunderland Date, first Survey 29<sup>th</sup> Nov 1900 Last Survey 19<sup>th</sup> April 1901  
Reg. Book. "Sutton" now "Ras Bera" (Number of Visits 20)

on the Screw Steamer Tons Gross 3836.8  
"Sutton" now "Ras Bera" Net 2499.

Master Joe Chamberlain Built at Sunderland By whom built J. Blumer & Co. When built 1901

Engines made at Sunderland By whom made John Dickinson & Sons Ltd when made 1901

Boilers made at Sunderland By whom made John Dickinson & Sons Ltd when made 1901

Registered Horse Power 350 Owners Ras Co Ltd Port belonging to Roudon

Nom. Horse Power as per Section 28 350 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 25-42-68 Length of Stroke 48 Revs. per minute 70 Dia. of Screw shaft as per rule 13.0 13.5  
 Dia. of Tunnel shaft as per rule 11.9 12.1 Dia. of Crank shaft journals as per rule 12.5 12.7 Dia. of Crank pin 13 Size of Crank webs Patent Dia. of thrust shaft under collars 13 Dia. of screw 17-6 Pitch of screw 17-9 No. of blades 4 State whether moveable No Total surface 86 1/2 sq ft

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 1/2 Stroke 24 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps feed 1x5+6 No. and size of Suctions connected to both Bilge and Donkey pumps Ballast 8x9x10

In Engine Room Ballast 8x9x10 In Holds, &c. two of 3 1/2" each hold, fore peak 2 1/2"

No. of bilge injections 1 sizes 4 Connected to condenser, or to circulating pump C-P Is a separate donkey suction fitted in Engine room & size Yes 4"

Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices in 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 never Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes worked from top platform

**BOILERS, &c.**— (Letter for record S) Total Heating Surface of Boilers 5400 sq ft Is forced draft fitted No

No. and Description of Boilers 2 Single Cased Multitubular Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs

Date of test 1.3.01 Can each boiler be worked separately Yes Area of fire grate in each boiler 71 sq ft No. and Description of safety valves to each boiler two 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 18" Mean dia. of boilers 16'-6" Length 11'-6" Material of shell plates Steel

Thickness 1 1/2" Range of tensile strength 28/32 Are they welded or flanged No Descrip. of riveting: cir. seams J. Riv Rep long. seams J. R. & B. S

Diameter of rivet holes in long. seams 17/16 Pitch of rivets 9 1/16" Length of plates or width of butt straps 1'-9 1/8"

Per centages of strength of longitudinal joint rivets 92% Working pressure of shell by rules 182 lbs Size of manhole in shell 16" x 12" plate 85%

Size of compensating ring 8 7/8 x 1 1/32 No. and Description of Furnaces in each boiler 4 plain Material Steel Outside diameter 8'-4 1/4"

Length of plain part top 7'-0" bottom 7'-3" Thickness of plates crown 3/4 + 1/8" bottom 3/4 + 1/8" Description of longitudinal joint Welded No. of strengthening rings Yes

Working pressure of furnace by the rules 180 lbs Combustion chamber plates: Material Steel Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 1/4"

Pitch of stays to ditto: Sides 9 1/2 x 9 Back 9 1/2 x 9 Top 9 1/2 x 9 1/2 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 181 lbs

Material of stays Steel Diameter at smallest part 2.03 Area supported by each stay 90.25 sq in Working pressure by rules 203 lbs End plates in steam space: Material Steel Thickness 1/8 + 1/32 Pitch of stays 18 3/4" How are stays secured Drub & Co. Working pressure by rules 180 lbs Material of stays Steel

Diameter at smallest part 6.7" Area supported by each stay 357 sq in Working pressure by rules 191 lbs Material of Front plates at bottom Steel

Thickness 7/8" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 9 1/2 x 9" Working pressure of plate by rules 227 lbs

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" Material of tube plates Steel Thickness: Front 15/16" Back 7/8" Mean pitch of stays 9"

Pitch across wide water spaces 1'-1 1/4" Working pressures by rules 180 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8 3/8 x 24 1/2" Length as per rule 36 1/16" Distance apart 9 1/2" Number and pitch of Stays in each three of 9 1/2"

Working pressure by rules 182 lbs Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked separately Yes

holes Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet 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



**DONKEY BOILER**— No. *one* Description *Cylindrical multitubular 2 plain furnaces*  
 Made at *Stockton* By whom made *Cudrow & Co Ltd* When made *27.2.01* Where fixed *on deck*  
 Working pressure *80 lb* tested by hydraulic pressure to *160 lb* No. of Certificate *2419* Fire grate area *26 sq ft* Description of safety valves *direct spring*  
 No. of safety valves *2* Area of each *80 lb* 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*  
 Dia. of donkey boiler *9'-0"* Length *9'-0"* Material of shell plates *Steel* Thickness *1/2"* Range of tensile strength *37/32*  
 Descrip. of riveting long. seams *to Riv lap* Dia. of rivet holes *37/32* Whether punched or drilled *drilled* Pitch of rivets *3 7/16*  
 Lap of plating *6"* Per centage of strength of joint *Rivets 83 Plates 75.4* Thickness of shell *End 1/16* *metal stay 16/2x11* *top 7/16* No. of Stays to do. *2 Rows 6*  
 Dia. of stays *1 3/4 effec* Diameter of furnace *Top 33" Bottom L* Length of furnace *6'-6"* Thickness of furnace plates *bot 1/2* Description of joint *lap*  
 Thickness of furnace *C Chm 1/2 to 9/16* Stayed by *1 1/2 4 1/2 S. 8 to 9" pitch* Working pressure of shell by rules *80 lb*  
 Working pressure of furnace by rules *80 lb* Diameter of *tubes 3"* Thickness of *uptake plates F 1/16 B 3/8* Thickness of *stay tubes 7/16*

**SPARE GEAR.** State the articles supplied: *two top end bolts & nuts, two bottom end bolts & nuts, two main bearing bolts & nuts, set of coupling bolts & nuts, spare feed & bilge pump valves, assorted iron bolts & nuts,*

The foregoing is a correct description,  
*H. Robinson* Manufacturer.

Dates { During progress of work in shops - *1900 - Nov 29* 1901 - *Jan 29, Feb 4, 6, 12, 13, 15, 20, 22* Mar 1, 5, 8, 11, 14, 15, 18, 20.  
 of Survey while building { During erection on board vessel - *27, 28, Apr 19.*  
 Total No. of visits *20.*

Is the approved plan of main boiler forwarded herewith *no*  
 Duplicate of *540 Engine of Pennmanor*  
 " " " donkey " " " *no*

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

Material of screw shaft *W. 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 *no. Painted only.*

*The machinery of this vessel has been constructed under special survey, the material and workmanship good and efficient. The boilers and main steam pipes tested under hydraulic pressure to 360 lb and found sound and efficient in every respect at that pressure. The Engines tried under steam at their working pressure and found satisfactory.*

*In my opinion this vessel is worthy of the ratification L.M.C. 4:01 to be made in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD, + L.M.C. 4:01.

The amount of Entry Fee. £ *3* : : When applied for, *26.4.01*  
 Special £ *37* : *10* : : When received, *15.01*  
 Donkey Boiler Fee £ : : : *30.11.01*  
 Travelling Expenses (if any) £ : : : :  
 Committee's Minute

FRI, MAY 3 1901

Assigned

*L.S. 15.01* *C.D. 1.5.01.*  
*Leonard Shallcross*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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