

# REPORT ON MACHINERY.

Port of MIDDLESBROUGH-ON-TEES

Received at London Office TUES 27 JUL 1897

No. in Survey held at Stockton  
eg. Book.

Date, first Survey 12<sup>th</sup> March Last Survey 25<sup>th</sup> June 18 97  
(Number of Visits 20)

on the S. S. "Ursula Bright."  
Master S. R. Whitson Built at Sunderland By whom built J. Priestman & Co  
Engines made at Stockton By whom made Blair & Co Ltd when made 1897  
Boilers made at Stockton By whom made Blair & Co Ltd when made 1897  
Registered Horse Power 300 Owners H. L. & J. G. Bright Port belonging to London  
Tons { Gross 3295.43  
Net 2114.45  
When built 1897  
Nom. Horse Power as per Section 28 300 Is Electric Light fitted no

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3  
Diameter of Cylinders 24", 40" & 66" Length of Stroke 45" Revolutions per minute 57 Diameter of Screw shaft as per rule 11.6  
Diameter of Tunnel shaft as fitted 12 3/4" Diameter of Crank shaft journals 13 1/4" Diameter of Crank pin 13 3/4" Size of Crank webs built  
Diameter of screw 17'-0" Pitch of screw 17'-0" No. of blades 4 State whether moveable no Total surface 81 sq. ft.  
No. of Feed pumps 2 Diameter of ditto 3" Stroke 33" Can one be overhauled while the other is at work yes  
No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 33" Can one be overhauled while the other is at work yes  
No. of Donkey Engines 2 Sizes of Pumps 9" x 10" Ball 4" x 8" Feed No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room Three 3 1/2" dia" In Holds, &c. Main Hold 2. 3 1/2" dia Fore Hold 2. 3 1/2"  
Apr. Hold 2. 3 1/2" Well 2 1/2"  
No. of bilge injections 1 sizes 7 Connected to condenser or to circulating pump yes 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 on Engine room bulkheads always accessible  
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 — How are they protected —  
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 apparently  
Is it fitted with a watertight door yes worked from upper platform

OILERS, &c.— (Letter for record (3)) Total Heating Surface of Boilers 4640 sq. ft. Is forced draft fitted no  
No. and Description of Boilers 2. S. & E. Multitubular Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs  
Date of test 19.5.97 Can each boiler be worked separately yes Area of fire grate in each boiler 61 sq. ft. No. and Description of safety valves to  
each boiler 2 direct Act. Spring Area of each valve 8.29 sq. ft. Pressure to which they are adjusted 165 lbs Are they fitted  
with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork no side Mean diameter of boilers 15'-6 1/2"  
Length 10'-6" Material of shell plates Steel Thickness 1 9/32" Description of riveting: circum. seams lap long. seams d. butt str.  
Diameter of rivet holes in long. seams 15/16" Pitch of rivets 3 3/4" & 4 3/8" Lap of plates or width of butt straps 19 1/4" x 1 1/4"  
Per centages of strength of longitudinal joint 89.6 Working pressure of shell by rules 168 lbs Size of manhole in shell 17 x 15"  
Size of compensating ring 31 x 27 x 1 9/32" No. and Description of Furnaces in each boiler 3. Corrugated Material Steel Outside diameter 46"  
Length of main part 36'-9" Thickness of plates 3 17/32" Description of longitudinal joint welded No. of strengthening rings —  
Working pressure of furnace by the rules 174 lbs Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 15/16"  
Pitch of stays to ditto: Sides 7 1/4" x 7" Back 7 3/8" x 7 1/4" Top 7 1/2" x 7 1/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 194 lbs  
Material of stays Steel Diameter at smallest part 1 7/16" Area supported by each stay 50.7 sq. ft. Working pressure by rules 191 lbs End plates in steam space:  
Material Steel Thickness 3/32" Pitch of stays 16 1/4" x 15 1/8" How are stays secured d. nuts & washers Working pressure by rules 168 lbs Material of stays Steel  
Diameter at smallest part 2 3/8" Area supported by each stay 245.7 sq. ft. Working pressure by rules 162 lbs Material of Front plates at bottom Steel  
Thickness 1" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 12" Working pressure of plate by rules 240 lbs  
Diameter of tubes 3 1/2" Pitch of tubes 4 1/2" x 4 7/8" Material of tube plates Steel Thickness: Front 1" Back 13/16" Mean pitch of stays 9 5/8"  
Pitch across wide water spaces 14 1/4" Working pressures by rules 189 lbs Girders to Chamber tops: Material Steel Depth and  
thickness of girder at centre 7 1/4" x 13/8" Length as per rule 27 1/2" Distance apart 7 1/2" Number and pitch of Stays in each 3. 7 1/4"  
Working pressure by rules 170 lbs 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 —



**DONKEY BOILER—** Description *Meredith's Patent*  
 Made at *Stockton* By whom made *Riley Brothers* When made *1897* Where fixed *Stockholm*  
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *1510* Fire grate area *26 sq* Description of safety valves *3 spring*  
 No. of safety valves *2* Area of each *7.072* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *yes* Diameter of donkey boiler *7'-0"* Length *15'-0"* Material of shell plates *steel* Thickness *1/2"*  
 Description of riveting long. seams *d.r. lap.* Diameter of rivet holes *15/16* Whether punched or drilled *punch* Pitch of rivets *3/4*  
 Lap of plating *4 1/4* Per centage of strength of joint Rivets *72* Thickness of shell crown plates *1/2* Radius of do. *Hemispherical*  
 Dia. of stays. — Diameter of furnace Top *4'-9"* Bottom *6'-1"* Length of furnace *36"* Thickness of furnace plates *5/8* Description of joint *lap.* Thickness of furnace crown plates *9/16* Stayed by *dished 3 ft rad.* Working pressure of shell by rules *94 lbs*  
 Working pressure of furnace by rules *85 lbs* Diameter of tubes *3 1/4* Thickness of tubes *9/16* Thickness of water tubes —

**SPARE GEAR.** State the articles supplied:— *1 set of connecting rod top and bottom end bolts nuts. 2 main bearing bolts nuts. 1 set of coupling bolts nuts. nuts bolts. propeller.*

The foregoing is a correct description,  
 For **BLAIR & CO., LIMITED.** Manufacturers of Engines & main boilers  
*Walter Borrie*

**SECRETARY.** 1897 Mar 12. 16. 30 Apr 9. 22. 24 May 8. 10. 13. 15. 19. 24. 25 June 1. 2. 15. 16. 21. 24. 25  
 Dates of Survey { During progress of work in shops - - }  
 while building { During erection on board vessel - - }  
 Total No. of visits *Twenty*

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *These engines and boilers have been built under special survey, and are of good workmanship and material, they have been well fitted and secured on board the vessel and were, on completion, tried under steam at moorings when everything worked satisfactory.*

*The vessel has now gone to Sunderland to fit out. Spare gear will be put on board at that Port and the Donkey boiler safety valve adjusted.*

*This vessel's machinery is now in our opinion eligible to the notation: **T.L.M.C. 97.***

*Spare gear supplied & donkey boiler safety valves adjusted to the v.p.*

*J. J. O'Donnell*

It is submitted that this vessel is eligible for **THE RECORD.**

*+ £ 11. 6. 97*

*27/7/97*

The amount of Entry Fee. £ *3* : : : When applied for.  
 Special .. £ *35* : : :  
 Donkey Boiler Fee .. £  
 Travelling Expenses (if any) £

**MACHINERY CERTIFICATE** When received, *24th July 1897*

*Str. John Sanderford Pat. Salmon*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

**FRI 30 JUL 1897**

Assigned

*+ £ 11. 6. 97*



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