

## REPORT ON MACHINERY.

Port of Middlesbrough

MON. 25 JUN 1894

No. in Survey held at Stockton-on-Tees  
Reg. Book.Date, first Survey 26<sup>th</sup> FebLast Survey 22<sup>nd</sup> May 1894(Number of Visits) 24on the Screw Steamer "Zylpha"Master A. Young Built at SunderlandBy whom built J. R. Thompson & SonsTons { Gross 2926  
Net 1845When built 1894Engines made at Stockton-on-Tees By whom madeBlair & Co. Ltd.when made 1894Boilers made at Stockton-on-Tees By whom madeBlair & Co. Ltd.when made 1894Registered Horse Power 300Owners Turner, Brightman & Co.Port belonging to LondonNom. Horse Power as per Section 28 246  
Manufacturers HP 190

## ENGINES, &amp;c.—

Description of Engines

Triple ExpansionNo. of Cylinders Three

Diameter of Cylinders 23" - 37½" - 61½" Length of Stroke 39" Revolutions per minute 60 Diameter of Screw shaft as per rule 10.7"  
as fitted 12.4"  
Diameter of Tunnel shaft as per rule 10.2" Diameter of Crank shaft journals 11¾" Diameter of Crank pin 12½" Size of Crank webs 19¼" x 8⅝" built  
as fitted 11½"  
Diameter of screw 16' 0" Pitch of screw 15' 6" No. of blades 4 State whether moveable No Total surface 7154 sq. ft.

No. of Feed pumps 2 Diameter of ditto 3" Stroke 28" Can one be overhauled while the other is at work YesNo. of Bilge pumps 2 Diameter of ditto 4½" Stroke 28" Can one be overhauled while the other is at work YesNo. of Donkey Engines Two Sizes of Pumps (4" x 8") (7½" x 9") No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room Three: P.S. C 3½", S. 3"In Holds, &c. Fore Hold: 2-3" dia. Main Hold: 2-3" dia.After Hold: 2-3" dia. Aftermost Hold: 2-3" dia. Tunnel well: one-2½" dia.No. of bilge injections 1 sizes 6" Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size Yes: 4" dia.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 YesAre all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks BothAre 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 AboveAre 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 YesWhat 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 YesAre the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges YesWhen were stern tube, propeller, screw shaft, and all connections examined in dry dock New vessel Is the screw shaft tunnel watertight YesIs it fitted with a watertight door Yes worked from Top platform in Engine room

## OILERS, &amp;c.—

(Letter for record S)Total Heating Surface of Boilers 3826 sq. ft.No. and Description of Boilers Two: Cylindrical Multitubular Working Pressure 160 lbs. Tested by hydraulic pressure to 320 lbs.Date of test 24/4/94 Can each boiler be worked separately Yes Area of fire grate in each boiler 50 sq. ft. No. and Description of safety valves toeach boiler Two: Direct Spring Area of each valve 4.06" Pressure to which they are adjusted 165 lbs. Are they fittedwith easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork About 16" Mean diameter of boilers 14' 3⅝"Length 10' 0" Material of shell plates Steel Thickness 1⅞" Description of riveting: circum. seams Lap Double long. seams Butt StrapsDiameter of rivet holes in long. seams 1⅞" Pitch of rivets 8" 4" one row Two rows Lap of plates or width of butt straps 1' 5⅝" x 1" thickPer centages of strength of longitudinal joint rivets 86% Working pressure of shell by rules 168 lbs. Size of manhole in shell 17" x 13"Size of compensating ring 31" x 27" x 1⅞" No. and Description of Furnaces in each boiler 3: Corrugated Material Steel Outside diameter 3' 6"Length of plain part top 6' 3" Thickness of plates crown 1" Description of longitudinal joint Welded No. of strengthening rings —Working pressure of furnace by the rules 179 lbs. Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 7/8"Pitch of stays to ditto: Sides 7/8" x 7" Back 7/8" x 7/8" Top 7/4" x 7" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 182 lbs.Material of stays Iron Diameter at smallest part 1⅞" diam Area supported by each stay 54" Working pressure by rules 182 lbs. End plates in steam space:Material Steel Thickness 3/2" Pitch of stays 15⅝" x 15" How are stays secured By nuts & washers Working pressure by rules 176 lbs. Material of stays SteelDiameter at smallest part 2⅝" Area supported by each stay 233" Working pressure by rules 171 lbs. Material of Front plates at bottom SteelThickness 1" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 12½" Working pressure of plate by rules 164 lbs.Diameter of tubes 3¼" Pitch of tubes 4½" x 4⅝" Material of tube plates Steel Thickness: Front 1" Back 13/16" Mean pitch of stays 9⅝"Pitch across wide water spaces 14¼" Working pressures by rules 189 lbs. 284 lbs. Girders to Chamber tops: Material Steel Depth andthickness of girder at centre 7½" x 13⅝" Length as per rule 27½" Distance apart 4' Number and pitch of Stays in each 3: 7¼"Working pressure by rules 183 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

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 *Vertical multi Meredith patent.*  
Made at *Sheddon* By whom made *Riley Bros.* When made *10/5/94* Where fired *In Stokehold*  
Working pressure *160 lbs* tested by hydraulic pressure to *320 lbs* No. of Certificate *842* Fire grate area *28 sq* Description of safety valves *direct spring*  
No. of safety valves *2* Area of each *3 1/4* Pressure to which they are adjusted *160 lbs* If fitted with easing gear *yes* If steam from main boilers can  
enter the donkey boiler *no* Diameter of donkey boiler *4' 0"* Length *15' 0"* Material of shell plates *Steel* Thickness *1/4"*  
Description of riveting long. seams *Double* Diameter of rivet holes *5/8"* Whether punched or drilled *Drilled* Pitch of rivets *3 3/4"*  
*Double* Rivets *49.6* Thickness of shell crown plates *1/16"* Radius of dome *Hemi-*  
*Double* Lap of plating *10 1/2"* Per centage of strength of joint *48* No. of Stays to do. *none*  
Dia. of stays. *-* Diameter of furnace Top *4' 2 3/4"* Bottom *5' 9"* Length of furnace *2' 9"* Thickness of furnace plates *3/4"* Description of  
joint *Welded* Thickness of furnace crown plates *1/16"* Stayed by *stayed to a radius of 30"* Working pressure of shell by rules *160 lbs*  
Working pressure of furnace by rules *160 lbs* Diameter of tubes *3 1/4"* Thickness of tubes *1/16"* Thickness of uptake plates *1/16"* Thickness of water tubes *1/16"* Pitch *7 1/2"*

SPARE GEAR. State the articles supplied:— *Top & bottom end connecting rod bolts & nuts. two*  
*main bearing bolts & nuts, one set of coupling bolts. feed & bilge*  
*pump valves. propeller. bolts. nuts etc.*

The foregoing is a correct description,  
FOR BLAIR & CO., LIMITED. Manufacturer of Engines & Main Rollers.  
*W. Borrie Asst Secretary*

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

*The Engines and Boilers of this vessel have been constructed under Special Survey and the materials and workmanship are good. When fitted in place they were tried under steam and worked satisfactorily.*

*The Machinery is now in good and efficient condition and will be eligible in my opinion to have the notation L.M.C. 5,94 marked in the Register Book; when the following work has been completed:— The Donkey boiler to be secured, its mountings fitted, and the safety valves adjusted under steam; spare gear to be put on board and examined; Tunnel to be completed and made watertight; Tunnel and Hold Suctions to be completed as per approved plan and in accordance with the Rules; and drain holes, proportionate to the size of the suction in the Engine room well, to be cut through the margin plates at each side.*

*The whole of the above mentioned work has been satisfactorily completed and the spare gear supplied.*

*P. R. Salmon*  
*Sunderland.*

It is submitted that  
this vessel is eligible for  
THE RECORD + LMC 6,94

*A R S R*  
*25-6-94*  
*MACHINERY*  
*WRITTEN.*

Certificate (if required) to be sent to

The amount of Entry Fee.. £ 2 : :  
Special .. .. £ 32 : 6  
Donkey Boiler Fee .. .. £ : :  
Travelling Expenses (if any) £ : :

When applied for,

*22 June 1894*

When received,

*26/6/94*

*W. R. Austin*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

TUES. 26 JUN 1894

Assigned

*+ LMC 6,94*



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Lloyd's Register  
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