

## REPORT ON MACHINERY.

Port of *Port of Hartlepool*Received at London Office **MON. 17 DEC 1894**No. in Survey held at *H. Hartlepool* Date, first Survey *22<sup>nd</sup> May* Last Survey *11<sup>th</sup> Dec, 1894*  
Reg. Book.

on the

*S.S. "Phæbe"*(Number of Visits *63*)Tons { Gross *2754*  
Net *1755*Master *W. Story* Built at *Whitby* By whom built *J. Turnbull & Son* When built *1894*Engines made at *H. Hartlepool* By whom made *J. Richardson & Son Ltd* when made *1894*Boilers made at *do* By whom made *do* when made *1894*Registered Horse Power *242* Owners *Turnbull Bros* Port belonging to *Cardiff*Nom. Horse Power as per Section 28 *239*

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

Diameter of Cylinders *23* *37½* *61½* Length of Stroke *39* Revolutions per minute *58* Diameter of Screw shaft as per rule *10.83*  
as fitted *11¼*

Diameter of Tunnel shaft as per rule *10.39* Diameter of Crank shaft journals *11¼* Diameter of Crank pin *11¼* Size of Crank webs *178 × 7½*  
as fitted *10¾*

Diameter of screw *16.0* Pitch of screw *16.0* No. of blades *4* State whether moveable *no* Total surface *70.37*

No. of Feed pumps *2* Diameter of ditto *2¾* Stroke *25* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *2* Diameter of ditto *3¾* Stroke *25* Can one be overhauled while the other is at work *yes*

No. of Donkey Engines *2* Sizes of Pumps *3½ × 5 & 8½ × 7* No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room *2 - 3½ & 2 - 3"* In Holds, &c. *Fore hold 1 - 2½, Fore hold 2 - 2½"*

*Main hold 2 - 2½", After hold 2 - 2½", After well 1 - 2½"*

No. of bilge injections *1* sizes *6* Connected to condenser, or to circulating pump *yes* Is a separate donkey suction fitted in Engine room & size *yes 3½*

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 *Below*

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 *-*

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 *Upper platform*

BOILERS, &c.— (Letter for record *(18)*) Total Heating Surface of Boilers *3664.55*

No. and Description of Boilers *Two cylindrical single ended* Working Pressure *160* Tested by hydraulic pressure to *320*

Date of test *9.10.94* Can each boiler be worked separately *yes* Area of fire grate in each boiler *45* No. and Description of safety valves to  
each boiler *2 Spring* Area of each valve *7.07* 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 *19"* Mean diameter of boilers *14.3"*

Length *9' 9"* Material of shell plates *Steel* Thickness *1¾"* Description of riveting: circum. seams *Lap double* long. seams *DB. treble*

Diameter of rivet holes in long. seams *1¾"* Pitch of rivets *7 7/8* Lap of plates or width of butt straps *19½"*

Per centages of strength of longitudinal joint rivets *85.76* Working pressure of shell by rules *164.5* Size of manhole in shell *ends 16 × 12"*  
plate *85.3*

Size of compensating ring No. and Description of Furnaces in each boiler *3 Morrison* Material *Steel* Outside diameter *3' 6 3/4"*

Length of plain part top *6' 0"* Thickness of plates crown *½"* Description of longitudinal joint *Welded* No. of strengthening rings *-*  
bottom *6' 6"* bottom *19 3/2* Top *19 3/2* Bottom *13/16*

Working pressure of furnace by the rules *176.7* Combustion chamber plates: Material *Steel* Thickness: Sides *19 3/2* Back *5/8* Top *19 3/2* Bottom *13/16*

Pitch of stays to ditto: Sides *8 5/8"* Back *8 3/4"* Top *8 1/2"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *164*

Material of stays *Steel* Diameter at smallest part *1 3/8* Area supported by each stay *72* Working pressure by rules *164* End plates in steam space:

Material *Steel* Thickness *1 1/6"* Pitch of stays *18 1/4" 16 1/4"* How are stays secured *BN&W* Working pressure by rules *160* Material of stays *Steel*

Diameter at smallest part *2 5/8"* Area supported by each stay *296* Working pressure by rules *164* Material of Front plates at bottom *Steel*

Thickness *1 1/6"* Material of Lower back plate *Steel* Thickness *2 7/8"* Greatest pitch of stays *12"* Working pressure of plate by rules *170*

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

Pitch across wide water spaces *14 1/4"* Working pressures by rules *165.5* Girders to Chamber tops: Material *Steel* Depth and  
thickness of girder at centre *7 1/2" × 1 3/4"* Length as per rule *2.4"* Distance apart *8 1/2"* Number and pitch of Stays in each *2 - pitch 8 1/4"*

Working pressure by rules *206* 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 *Vertical four crop tubes*  
 Made at *Stockton* By whom made *Riley Bros* When made *8.10.94* Where fixed *Stockhol*  
 Working pressure *80 lbs* Tested by hydraulic pressure to *100* No. of Certificate *936* Fire grate area *26 1/2* Description of safety valves *Spring*  
 No. of safety valves *2* Area of each *7.09* Pressure to which they are adjusted *82 1/2* If fitted with easing gear *yes* If steam from main boiler  
 enter the donkey boiler *no* Diameter of donkey boiler *4' 0"* Length *13' 6"* Material of shell plates *Steel* Thickness *7/16*  
 Description of riveting long. seams *Lap double* Diameter of rivet holes *7/8* Whether punched or drilled *Punched* Pitch of rivets *3 1/8*  
 Lap of plating *4 1/4"* Per centage of strength of joint *74.7* Thickness of shell crown plates *7/16* Radius of do. *5' 0"* No. of Stays to do. *7*  
 Dia. of stays *1 1/2"* Diameter of furnace Top *5' 5"* Bottom *6' 0 1/4"* Length of furnace *5' 3"* Thickness of furnace plates *5/8"* Description of  
 joint *Lap Single* Thickness of furnace crown plates *7/16* Stayed by *Same as Shell* Working pressure of shell by rules *80 lbs*  
 Working pressure of furnace by rules *80 lbs* Diameter of uptake *17"* Thickness of uptake plates *7/16* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *Propeller, 2 main bearing bolts & nuts, 2 top end bolts & nuts, 2 bottom end bolts & nuts, 1 set of shaft coupling bolts & nuts, 2 feed & 2 bilge pump valves, piston springs, 6 boiler tubes, 6 air pump valves, nuts, bolts, & iron assorted.*

The foregoing is a correct description,

For THOMAS RICHARDSON & SONS, LIMITED, Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery has been Specially Inspected during construction the material & workmanship good & under the vessel eligible in my opinion to have the Record L.M.C. 12.94 in the Register Book of the Society.*

It is submitted that this vessel is eligible for THE RECORD + L.M.C 12-94

*W.A.*  
*17-12-94*

*[Large blue ink signature]*

Certificate (if required) to be sent to

The amount of Entry Fee..	£	2 :	When applied for, 13.12.18.94 When received, 15.12.94
Special .. .. .	£	31 :	
Donkey Boiler Fee .. .. .	£	:	
Travelling Expenses (if any) £	2 :	16 : 6	

*Richard Gird*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

TUES. 13 DEC 1894

Assigned

*+ 2 m.c 12.94*



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