

REPORT ON MACHINERY.

Port of *Bristol* *Hartlepool*

Received at London Office **MON. 17 Dec 1894**

No. in Survey held at *B. Hartlepool* Date, first Survey *22nd May* Last Survey *11th Dec, 1894.*

Reg. Book. on the *S.S. "Phoebe"* (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 *B. Hartlepool* By whom made *J. Richardson & Son* 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 37 1/2 61 1/2* Length of Stroke *39* Revolutions per minute *58* Diameter of Screw shaft as per rule *10.83* as fitted *11 1/4*

Diameter of Tunnel shaft as per rule *10.29* as fitted *10 3/4* Diameter of Crank shaft journals *11 1/4* Diameter of Crank pin *11 3/4* Size of Crank webs *17 1/2 x 7 1/2*

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 *2 3/4* Stroke *25* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *2* Diameter of ditto *3 3/4* Stroke *25* Can one be overhauled while the other is at work *yes*

No. of Donkey Engines *2* Sizes of Pumps *3 1/2 x 5 3/8 8 1/2 x 7* No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *2 - 3 1/2" 2 - 3"* In Holds, &c. *Fore hold 1 - 2 1/2", Fore hold 2 - 2 1/2"*

Main hold 2 - 2 1/2", After hold 2 - 2 1/2", After well 1 - 2 1/2"

No. of bilge injections *1* sizes *6* Connected to condenser, or to circulating pump *no* Is a separate donkey suction fitted in Engine room & 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 *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 *new vessel* 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 *3664.5 sq ft*

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 *1 3/8"* Description of riveting: circum. seams *Lap double long. seams R.P. treble*

Diameter of rivet holes in long. seams *1 5/8"* Pitch of rivets *7 7/8"* Lap of plates or width of butt straps *19 1/2"*

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 x 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 *1/2"* Description of longitudinal joint *Welded* No. of strengthening rings *-* bottom *6' 6"* bottom *19 3/8"* Back *5 7/8"* Top *19 3/8"* Bottom *13 1/8"*

Working pressure of furnace by the rules *176.7* Combustion chamber plates: Material *Steel* Thickness: Sides *19 3/8"* Back *5 7/8"* Top *19 3/8"* Bottom *13 1/8"*

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 1/8"* Pitch of stays *18 1/4" 16 1/4"* How are stays secured *R.N.R.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 3/8"* 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 1/8"* 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" x 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 *Stockton*
 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 *7.04* Pressure to which they are adjusted *82 1/2* If fitted with casing 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 *3/16*
 Description of riveting long seams *Lap double* Diameter of rivet holes *7/8* Whether punched or drilled *Punched* Pitch of rivets *3 3/8*
 Lap of plating *1/4"* Per centage of strength of joint Rivets *74.7* Thickness of shell crown plates *3/16* 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 *3/16* 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 surveyed 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]

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

Certificate (if required) to be sent to
 The amount of Entry Fee.. £ 2 :
 Special £ 31 : 19 :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ 2 : 16 : 6

When applied for, *13.12.94*
 When received, *15.12.94*

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

Committee's Minute
 Assigned
 TUES. 13 DEC 1894
+ L.M.C. 12, 94