

REPORT ON MACHINERY.

Port of **WEST HARTLEPOOL.**

SAT. 4 MAR 1899

Received at London Office 18

No. in Survey held at **W. Hartlepool** Date, first Survey **14th Nov. 1898** Last Survey **1st March 1899.**

Reg. Book. **10** on the **S.S. Raithwaite** (Number of Visits **50**)

Master **Clarke** Built at **W. Hartlepool** By whom built **H. Gray & Co. Ld.** Tons { Gross **3027** Net **1964** When built **1899**

Engines made at **W. Hartlepool** By whom made **Central Marine Eng Works. Ld.** when made **1899**

Boilers made at **do** By whom made **do** when made **1899**

Registered Horse Power **280** Owners **Poplar Steamship Co. Ld.** Port belonging to **W. Hartlepool**

Nom. Horse Power as per Section 28 **258** Is Electric Light fitted **no**

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

Diameter of Cylinders **24.38.64** Length of Stroke **42** Revolutions per minute **65** Diameter of Screw shaft **11.8** as per rule **11.8** as fitted **12**

Diameter of Tunnel shaft **10.68** as per rule **11** as fitted **11** Diameter of Crank shaft journals **11 1/2** Diameter of Crank pin **11 1/2** Size of Crank webs **7 1/2 x 16 1/4**

Diameter of screw **15.6** Pitch of screw **15.3** No. of blades **4** State whether moveable **no** Total surface **80 1/2**

No. of Feed pumps **2** Diameter of ditto **3 1/4** Stroke **26** Can one be overhauled while the other is at work **yes**

No. of Bilge pumps **2** Diameter of ditto **4** Stroke **26** Can one be overhauled while the other is at work **yes**

No. of Donkey Engines **2** Sizes of Pumps **4 x 6 & 10 x 9** No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room **two 3 1/2" & two 3"** In Holds, &c. **two 3" in 'A', two 3" in main, two 3" in after hold & one 2 1/2" in after well with connections to peak.**

No. of bilge injections **1** sizes **5** 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 **none**

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 **-**

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 **25.2.99** Is the screw shaft tunnel watertight **yes**

Is it fitted with a watertight door **yes** worked from **Upper Platform**

BOILERS, &c.— (Letter for record **(A)**) Total Heating Surface of Boilers **3784** Is forced draft fitted **no**

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

Date of test **16.1.99** Can each boiler be worked separately **yes** Area of fire grate in each boiler **47 1/2** No. and Description of safety valves to each boiler **Two Spring** Area of each valve **8.29** Pressure to which they are adjusted **165** Are they fitted with easing gear **yes** Smallest distance between boilers or uptakes and bunkers or woodwork **23"** Mean diameter of boilers **15.0"**

Length **10.0** Material of shell plates **Steel** Thickness **17** Description of riveting: circum. seams **none** long. seams **A.B. Shell**

Diameter of rivet holes in long. seams **1 1/16** Pitch of rivets **8 3/8"** Lap of plates or width of butt straps **18"**

Per centages of strength of longitudinal joint **87.3** Working pressure of shell by rules **160.1** Size of manhole in shell **16 x 12**

Size of compensating ring **Stamped** No. and Description of Furnaces in each boiler **3 Furnaces** Material **Steel** Outside diameter **43 1/2"**

Length of plain part **6.8** Thickness of plates **1 1/2** Description of longitudinal joint **Butted** No. of strengthening rings **4**

Working pressure of furnace by the rules **160** Combustion chamber plates: Material **Steel** Thickness: Sides **19 3/32** Back **19 3/32** Top **19 3/32** Bottom **7/8**

Pitch of stays to ditto: Sides **8 5/8** Back **8 5/8** Top **7 1/2** If stays are fitted with nuts or riveted heads **nuts** Working pressure by rules **163**

Material of stays **Steel** Diameter at smallest part **1.38** Area supported by each stay **730** Working pressure by rules **161** End plates in steam space: Material **Steel** Thickness **1 3/8** Pitch of stays **22 1/2, 22** How are stays secured **by nuts** Working pressure by rules **165** Material of stays **Steel**

Diameter at smallest part **2.28** Area supported by each stay **503** Working pressure by rules **168** Material of Front plates at bottom **Steel**

Thickness **15/16** Material of Lower back plate **Steel** Thickness **15/16** Greatest pitch of stays **15"** Working pressure of plate by rules **204**

Diameter of tubes **3 1/4** Pitch of tubes **4 1/2** Material of tube plates **Steel** Thickness: Front **15/16** Back **5/8** Mean pitch of stays **9"**

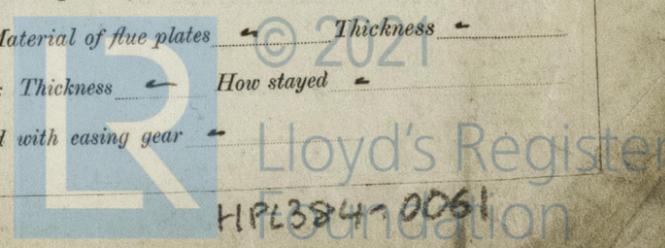
Pitch across wide water spaces **14 1/4** Working pressures by rules **166** Girders to Chamber tops: Material **Steel** Depth and thickness of girder at centre **8 x 1 1/4** Length as per rule **2.0** Distance apart **7 1/2"** Number and pitch of Stays in each **one**

Working pressure by rules **176** 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 **-**

If not, state otherwise, and where. In a Report also sent on the Hull of the Ship.



2 DONKEY BOILERS Description *Vertical with four crop tubes*
 Made at *A. Spire* By whom made *A. Gray & Co. Ltd.* When made *1.99* Where fixed *Stockholm*
 Working pressure *100* tested by hydraulic pressure to *200* No. of Certificate *2666* Fire grate area *288* Description of safety valves *Spring*
 No. of safety valves *2* Area of each *7.07* Pressure to which they are adjusted *100 lb* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *7.0"* Length *14.0"* Material of shell plates *Sub* Thickness *17/32*
 Description of riveting long seams *Lap double* Diameter of rivet holes *3/8* Whether punched or drilled *Punched* Pitch of rivets *2 13/16*
 Lap of plating *4 1/4"* Per centage of strength of joint Rivets *68.4* Plates *68.8* Thickness of shell crown plates *5/8* Radius of do. *8.6* No. of Stays to do. *7*
 Dia. of stays *2"* Diameter of furnace Top *4.11* Bottom *6.1* Length of furnace *5.11* Thickness of furnace plates *23/32* Description of joint *Lap Single* Thickness of furnace crown plates *25/32* Stayed by *Same as Shell* Working pressure of shell by rules *103*
 Working pressure of furnace by rules *102.5* Diameter of uptake *15* Thickness of uptake plates *3/4* Thickness of water tubes *3/8*

SPARE GEAR. State the articles supplied:— *Propeller, 2 main bearing bolts, 2 top end bolts, 2 bottom end bolts, 1 set of shaft coupling bolts all with nuts, 1 set of feed valves, 1 set of bilge pump valves, piston springs, check valves for main & donkey feeds, 2 safety valves & springs, nuts, bolts & girths.*
 The foregoing is a correct description,
Milner & Hornum Manufacturer. *John Egnis Boilers only (not donkey boilers)*

Dates of Survey of building
 During progress of work in shops— *1898. Nov. 14, 15, 17, 18, 19, 21, 22, 23, 24, 26, 28, 29, 30. Dec. 1, 2, 5, 8, 12, 14, 15, 16, 19, 20, 21, 22, 30, 31. 1899. Jan. 5, 6*
 During erection on board vessel— *9, 10, 11, 12, 14, 16, 17, 19, 20, 21, 23, 26, 27, 30, 31. Feb. 2, 6, 7, 8, 25. Mar. 1.*
 Total No. of visits *50*

General Remarks (State quality of workmanship, opinions as to class, &c.)
ENGINES—Length of stern bush *4.9"* Diameter of crank shaft journals *as per rule 11.246* as fitted *11.5* Diameter of thrust shaft under collars *11 3/4*
BOILERS—Range of tensile strength *27630* Are they welded or flanged *Both* **DONKEY BOILERS**—No. *2* Range of tensile strength *27632*
 Is the approved plan of main boiler forwarded herewith *no* Is the approved plan of donkey boiler forwarded herewith *yes*

*The machinery has been specially surveyed during construction the material & workmanship good & renders the vessel eligible in my opinion to have the Record **L.M.C. 3.99** in the Register Book of the Society.*

It is submitted that this vessel is eligible for THE RECORD. **L.M.C. 3.99.**
A.C.H.
6.3.99.
[Signature]
6.3.99

WEST HARTLEPOOL
 Certificate (if required) to be sent to
 (The Surveyors are registered not to write on or below the space for Committee's Minute.)

The amount of Entry Fee... £ *2* : :
 Special .. £ *32* : *18* :
 Donkey Boiler Fee .. £ *4* : *4* :
 Travelling Expenses (if any) £ : :
 When applied for, *3.3.99*
 When received, *3.3.99*

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

Committee's Minute **TUES. 7 MAR 1899**
 Assigned

MACHINERY CERTIFICATE WRITTEN.

+ L.M.C. 3.99

