

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. **11** (Number of Visits **50**)
 on the **S.S. Raithwaite** Tons { Gross **3027**
 Net **1964**
 Master **Clarke** Built at **W. Hartlepool** By whom built **R. Gray & Co. Ltd.** When built **1899**
 Engines made at **W. Hartlepool** By whom made **Central Marine Eng. Works Ltd.** when made **1899**
 Boilers made at **do** By whom made **do** when made **1899**
 Registered Horse Power **280** Owners **Pyman Steamship Co. Ltd.** Port belonging to **W. Hartlepool**
 Nom. Horse Power as per Section 28 **268** 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 **as per rule 11.8**
 Diameter of Tunnel shaft **as fitted 11** Diameter of Crank shaft journals **11½** Diameter of Crank pin **11½** Size of Crank webs **7½ x 16½**
 Diameter of screw **15.6** Pitch of screw **15.3** No. of blades **4** State whether moveable **no** Total surface **80 sq**
 No. of Feed pumps **2** Diameter of ditto **3¼** 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 3½ & two 3** In Holds, &c. **two 3 in No. 1, two 3 in main, two 3 in after hold & one 2½ in after well with connections to peak.**
 No. of bilge injections **1** sizes **5** Connected to condenser, or to circulating pump **Pump** 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 **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 **(S)**) Total Heating Surface of Boilers **3784** Is forced draft fitted **no**
 No. and Description of Boilers **Two Single ended Stubs** 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 sq** 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 **B.B. 16**
 Diameter of rivet holes in long. seams **17/16** Pitch of rivets **8.3** 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 **43½**
 Length of plain part **6.8** Thickness of plates **15** Description of longitudinal joint **Butted** No. of strengthening rings **7**
 Working pressure of furnace by the rules **160** Combustion chamber plates: Material **Steel** Thickness: Sides **19** Back **19** Top **19** Bottom **19**
 Pitch of stays to ditto: Sides **8.5** Back **8.5** Top **7.5** 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 **19** Pitch of stays **22.22** How are stays secured **by nuts** Working pressure by rules **165** Material of stays **Steel**
 Diameter at smallest part **3.28** Area supported by each stay **503** Working pressure by rules **168** Material of Front plates at bottom **Steel**
 Thickness **15** Material of Lower back plate **Steel** Thickness **15** Greatest pitch of stays **15** Working pressure of plate by rules **204**
 Diameter of tubes **3¼** Pitch of tubes **4½** Material of tube plates **Steel** Thickness: Front **15** Back **5** Mean pitch of stays **9**
 Pitch across wide water spaces **14½** Working pressures by rules **166** Girders to Chamber tops: Material **Steel** Depth and
 thickness of girder at centre **8 x 14** Length as per rule **2.0** Distance apart **7½** 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 **-**

2 DONKEY BOILERS Description *Vertical with four crop tubes*
 Made at *A. Spry* 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 *Steel* Thickness *1 1/2"*
 Description of riveting long. seams *Lap double* Diameter of rivet holes *3/8* Whether punched or drilled *Punched* Pitch of rivets *2 1/16*
 Lap of plating *4 1/4"* Per centage of strength of joint Rivets *68.4* 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 *2 3/32* Description of joint *Lap single* Thickness of furnace crown plates *2 3/32* 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 valve springs, nuts, bolts & fire.*
 The foregoing is a correct description,
Milner & Hornum Manufacturer. *James Eugenie & Co. Ltd. (not dry dock)*

Dates of Survey
 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 *11.246* as per rule *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.

6.3.99

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

+ L.M.C. 3.99

MACHINERY CERTIFICATE
 WRITTEN.



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 Foundation

WEST HARTLEPOOL

Certificate (if required) to be sent to
 (The Surveyors are requested not to write in or below the space for Committee's Minute.)