

REPORT ON MACHINERY.

Port of Sunderland.

WED. 22 FEB 1899

No. in Survey held at Sunderland. Date, first Survey 2nd July 1898 Last Survey Feb'y 13th 1899
Reg. Book. (Number of Visits 55)on the S/s "Synalder"Tons { Gross 3223.44
Net 2061.24Master Capt. David Built at Sland. By whom built R Thompson & Sons. When built 1899Engines made at Sland. By whom made N. Co. M. Eng'rs Ltd. when made 1899.Boilers made at " By whom made " when made 1899.Registered Horse Power " Owners Johnstone Sproule & Co. Port belonging to LiverpoolNom. Horse Power as per Section 28 289 Is Electric Light fitted no.MACHINES, &c.—Description of Engines Tri C. P. & D No. of Cylinders 3. No. of Cranks 3.Diameter of Cylinders 23" 39" 65" Length of Stroke 42" Revolutions per minute 40" Diameter of Screw shaft as per rule 12.18"
as fitted 12.2"Diameter of Tunnel shaft as per rule 11.02" Diameter of Crank shaft journals 11 3/4" Diameter of Crank pin 11 3/4" Size of Crank webs 17" x 4 3/4"
as fitted 11 1/4"Diameter of screw 16' 3" Pitch of screw 16' 9" No. of blades 4 State whether moveable f. Total surface 40 fNo. of Feed pumps 2 Diameter of ditto 3" Stroke 24" Can one be overhauled while the other is at work yesNo. of Bilge pumps 2 Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work yesNo. of Donkey Engines 2 Sizes of Pumps 7" x 9" x 9" 46" x 4" x 6" No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room 532 62 of 32 8 32 In Holds, &c. 2 of 32 in each cargocompartment. 32 tunnel well.No. of bilge injections 1 sizes 5" Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size yes 32"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 noneAre 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 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 yesIs it fitted with a watertight door yes. worked from top platformOILERS, &c.—(Letter for record S.) Total Heating Surface of Boilers 4428 Is forced draft fitted no.No. and Description of Boilers 2 cylinder multi-tube S. ends Working Pressure 180 lb Tested by hydraulic pressure to 260 lbDate of test 18/11/98 Can each boiler be worked separately yes. Area of fire grate in each boiler 60 f No. and Description of safety valves toeach boiler 2 direct spring Area of each valve 7.06. Pressure to which they are adjusted 185 lb Are they fittedwith easing gear yes. Smallest distance between boilers or uptakes and bunkers or woodwork 20" Mean diameter of boilers 15-6"Length 10' 6" Material of shell plates S. Thickness 1 1/32 Description of riveting: circum. seams d. & lap long. seams T. T. d buttDiameter of rivet holes in long. seams 1 1/32. Pitch of rivets 8 1/4" Lap of plates or width of butt straps 18 1/4"Per centages of strength of longitudinal joint 86.33 Working pressure of shell by rules 183 lb Size of manhole in shell 16" x 12"Size of compensating ring 30" x 26" x 1 1/32 No. and Description of Furnaces in each boiler 4 plain Material S. Outside diameter 3-12"Length of plain part top 6' 7" Thickness of plates crown 3 3/4" Description of longitudinal joint D. butt strap No. of strengthening rings —bottom 4' 0 3/4" Working pressure of furnace by the rules 188 lb Combustion chamber plates: Material S. Thickness: Sides 3 1/2" Back 1 1/2" Top 3 1/2" Bottom 1"Pitch of stays to ditto: Sides 9 1/4" x 8 3/4" Back 10" x 9" Top 9 1/4" x 7 1/2" If stays are fitted with nuts or riveted heads nuts. Working pressure by rules 180 lbMaterial of stays S. Diameter at smallest part 1 7/16 Area supported by each stay 810 Working pressure by rules 199 lb End plates in steam space:Material S. Thickness 1 1/16 Pitch of stays 22 1/4" x 23 1/2" How are stays secured d nuts Working pressure by rules 183 lb Material of stays S.Diameter at smallest part 9.8 Area supported by each stay 534 Working pressure by rules 183 Material of Front plates at bottom S.Thickness 1 3/16 Material of Lower back plate 1 3/16 Thickness 1 3/16 Greatest pitch of stays 18" Working pressure of plate by rules 182Diameter of tubes 3 1/4" Pitch of tubes 4 7/8" x 4 1/2" Material of tube plates S Thickness: Front 1 3/16 Back 1 3/16 Mean pitch of stays 9 1/4" x 9"Pitch across wide water spaces 14" Working pressures by rules 230 lb Girders to Chamber tops: Material S. Depth andthickness of girder at centre 6 1/2" x 25" Length as per rule 29.5 Distance apart 42" Number and pitch of Stays in each 2 of 9 1/4"Working pressure by rules 187 lb Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler workedseparately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivetholes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates ThicknessIf stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayedWorking pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

DONKEY BOILER— Description *Horizontal Multitube 2 plain furnaces*
 Made at *Stockton* By whom made *Riley Bros* When made *6/99* Where fixed *main de engine*
 Working pressure *80 lb* Tested by hydraulic pressure to *160 lb* No. of Certificate *1872* Fire grate area *25 sq ft* Description of safety valves *Spring*
 No. of safety valves *2* Area of each *7 sq ft* Pressure to which they are adjusted *83 lb* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *9' 6"* Length *8' 6"* Material of shell plates *S* Thickness *1/32"*
 Description of riveting long. seams *J.R. lap* Diameter of rivet holes *1 1/8"* Whether punched or drilled *punched* Pitch of rivets *4 1/8"*
 Lap of plating *6 1/2"* Per centage of strength of joint Rivets *80.4* Thickness of shell *end* plates *1/16"* Radius of do. *1/8"* No. of Stays to do. *1/8"*
 Dia. of stays *1 1/4" x 1 1/2"* Diameter of furnace Top *33"* Bottom *—* Length of furnace *5' 5"* Thickness of furnace plates *1/32"* Description of joint *weld* Thickness of furnace *cc* plates *1/32"* Stayed by *1 1/8"* nutted stays *8 x 8 1/4"* Working pressure of shell by rules *86 lb*
 Working pressure of furnace by rules *110.4/15* Diameter of uptake *3 1/4"* Thickness of uptake plates *7/16" B 9/16"* Thickness of water tubes *5/16"*

SPARE GEAR. State the articles supplied:— *Spare gear supplied in accordance with the requirements of the rules and in addition 2 m.p. piston rings 2 S.P. piston rings. propeller nuts bolts and assorted iron*

The foregoing is a correct description,
J. H. Smith & Co. Shipbuilding Engineers Ltd.
Robert Mather Manufacturer.

Dates of Survey while building
 During progress of work in shops— *1898 July 2, 11, 12, 22, 25, Aug 29, Sept 1, 14, 21, 24, 26, 28, Oct 6, 11, 14, 17, 20, 26, 30*
 During erection on board vessel— *4, 10, 14, 15, 17, 18, 21, 22, 29 Dec 1, 2, 3, 5, 8, 12, 13, 14, 16, 19, 20, 21, 22, 23 1899 Jan 7, 10, 12*
 Total No. of visits *55* *17, 18, 19, 20, 21, 24, 25, 27 Feb. 8, 10, 13*

General Remarks (State quality of workmanship, opinions as to class, &c.)
ENGINES—Length of stern bush *4' 6"* Diameter of crank shaft journals *as per rule 11.6 as fitted 11 3/4"* Diameter of thrust shaft under collars *12*
BOILERS—Range of tensile strength *29-32* Are they welded or flanged *ends* **DONKEY BOILERS**—No. *1* Range of tensile strength *27-32*
 Is the approved plan of main boiler forwarded herewith *yes* Is the approved plan of donkey boiler forwarded herewith *no*

Machinery and boilers constructed under special survey. Materials and workmanship good. Steam pipes and boilers tested by hydraulic to double the working pressure. Engines and boilers examined under steam and found satisfactory.
 In my opinion this vessel is eligible for the record in the Register Book of L.M.C. 2/99.

It is submitted that
 this vessel is eligible for
THE RECORD. L.M.C. 2.99.

A.C.H.
22.2.99.
22.2.99

The amount of Entry Fee. £ 2 : :
 Special £ 34 : 9 :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : :
 Committee's Minute
 Assigned

When applied for, *21.2.99*
 When received, *2.3.99*
J. J. Findlay
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

FRI. 24 FEB 1899

22 m c 2, 99

