

REPORT ON MACHINERY.

Port of LIVERPOOL

SAT. 7 JAN 1899

Received at London Office

18

No. in Survey held at *Liverpool* Date, first Survey *Feb 10th 97* Last Survey *Dec 31st 1898*
 Reg. Book. *194* on the *Steel Twin Screw Ste. "Manhattan"* (Number of Visits *135*)
 Master *Belfast* Built at *Belfast* By whom built *Harland & Wolff* When built *1898*
 Engines made at *Liverpool* By whom made *Lawell Preston & Co. (Linn)* when made *1898*
 Boilers made at *do* By whom made *do* when made *1898*
 Registered Horse Power *478* Owners *Atlantic & Transport Co. Ltd* Port belonging to *Belfast*
 Nom. Horse Power as per Section 28 *478* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Inverted Triple Expansion* No. of Cylinders *3 to each* No. of Cranks *3 to each*

Diameter of Cylinders (2nd) *19" 31" 52"* Length of Stroke *48"* Revolutions per minute *75* Diameter of Screw shaft *as per rule 11" 24"*
 Diameter of Tunnel shaft *as per rule 10" 2"* Diameter of Crank shaft journals *12"* Diameter of Crank pin *12"* Size of Crank webs *15 1/2" x 8 1/2"*
 Diameter of screw *14" 9"* Pitch of screw *18" 3"* No. of blades *3* State whether moveable *Yes* Total surface *53.5 sq. ft.*

No. of Feed pumps *2* Diameter of ditto *4 1/4"* Stroke *24"* Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *2* Diameter of ditto *5"* Stroke *24"* Can one be overhauled while the other is at work *Yes*

No. of Donkey Engines *(5)* Sizes of Pumps *1 Ballast donkey 12" x 10" x 12"* No. and size of Suctions connected to both Bilge and Donkey pumps
1 Feed 10" x 8" x 26" *3 Carriers 12" x 10" x 12"* *1 Feed 5 1/4" x 4" x 5"* *1 Cable donkey 4" x 3" x 5"*
 In Engine Room *(4) 3 of 3 1/2" dia. 1 of 2 1/2" dia* In Holds, &c. *(11) of 3 1/2" dia. 1 of 2 1/2" dia*

The main bridge and donkey pumps draw from sea water bridges of engine room & holds. Hotwell & Condenser
 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 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 *Yes*

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 *before launching* Is the screw shaft tunnel watertight *Yes*

Is it fitted with a watertight door *Yes* worked from *Main Platform*

BOILERS, &c.—(Letter for record *(5)*) Total Heating Surface of Boilers *8359 sq. ft.* Is forced draft fitted *No*

No. and Description of Boilers *(3) Cylindrical & Multitubular* Working Pressure *180 lb* Tested by hydraulic pressure to *360 lb*

Date of test *Can each boiler be worked separately Yes* Area of fire grate in each boiler *231 sq. ft.* No. and Description of safety valves to *X*

each boiler *(2) direct spring* Area of each valve *Pressure to which they are adjusted 180 lb* Are they fitted *X*

with easing gear *Yes* Smallest distance between boilers or uptakes and bunkers or woodwork *12"* Mean diameter of boilers *15" 0"*

Length *10" 3"* Material of shell plates *Steel* Thickness *1 3/8"* Description of riveting: circum. seams *Lap 8" x 4" in long. seams Triple riv. Bull straps*

Diameter of rivet holes in long. seams *1 1/2"* Pitch of rivets *9 5/8" x 4 1/8"* Lap of plates or width of butt straps *1" 9 1/2"*

Per centages of strength of longitudinal joint *84.34* Working pressure of shell by rules *184 lb* Size of manhole in shell *16" 12"*

Size of compensating ring *31" x 27" x 1 1/2"* No. and Description of Furnaces in each boiler *Marine* Material *Steel* Outside diameter *3' 7 1/2"* *X*

Length of plain part *6"* Thickness of plates *19"* Description of longitudinal joint *Milded* No. of strengthening rings *1*

Working pressure of furnace by the rules *214 lb* Combustion chamber plates: Material *Steel* Thickness: Sides *19"* Back *19"* Top *20"* Bottom *3"*

Pitch of stays to ditto: Sides *8 1/4" x 8"* Back *8 1/4" x 8"* Top *8 1/4" x 8"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *180 lb*

Material of stays *Steel* Diameter at smallest part *1 3/8"* Area supported by each stay *66 sq. in* Working pressure by rules *180 lb* End plates in steam space:

Material *Steel* Thickness *1"* Pitch of stays *18" x 16 3/8"* How are stays secured *Double nuts* Working pressure by rules *180 lb* Material of stays *Steel*

Diameter at smallest part *2 1/4"* Area supported by each stay *294 sq. in* Working pressure by rules *180 lb* Material of Front plates at bottom *Steel*

Thickness *15"* Material of Lower back plate *Steel* Thickness *13"* Greatest pitch of stays *14"* Working pressure of plate by rules *180 lb*

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

Pitch across wide water spaces *14 1/4"* Working pressures by rules *180 lb* Girders to Chamber tops: Material *None* Depth and

thickness of girder at centre *7 1/2" x 1"* Length as per rule *2' 6"* Distance apart *8 1/2"* Number and pitch of Stays in each *(3) single ended boiler*

Working pressure by rules *Superheater or Steam chest; how connected to boiler None* Can the superheater be shut off and the boiler worked

separately *Yes* 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 *None*

Made at _____ By whom made _____ When made _____ Where used _____
Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ Description of safety valves _____
No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ If fitted with easing gear _____ If steam from main boilers can
enter the donkey boiler _____ Diameter of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____
Description of riveting long. seams _____ Diameter of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____
Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Thickness of shell crown plates _____ Radius of do. _____ No. of Stays to do. _____
Dia. of stays _____ Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description of
joint _____ Thickness of furnace crown plates _____ Stayed by _____ Working pressure of shell by rules _____
Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:—1 crank shaft, 1 Propeller shaft, 1 Air pump
becket and rod, 2 Main bearing bolts, 4 connecting rod bolts
1 set coupling bolts, 3 Slide Valve spindles, 1 set feed + bridge pump
valves, 1 set boiler feed check valves, 2 Propeller blades, and a quantity
of bolts & nuts assorted for various parts of engine.
The foregoing is a correct description,
For FAWCETT, PRESTON & Co., LIMEWORKERS, MANUFACTURERS.
Thos. Roberts

Dates of Survey while building
During progress of work in shops— 1897 Feb 10, 17, Mar 16, 26, Apr 1, 5, 12, 22, 27, 28, May 7, 8, 11, 12, 14, 21, 24, 26, June 3, 9, 10
During erection on board vessel— 12, 19, July 1, 6, 10, 12, 15, 30, Aug 5, 6, 11, 24, 25, Sep 7, 8, 13, Oct 7, 9, 18, 25, 26, 27, 28, Nov 3, 4, 6, 9, 10, 11, 12
Total No. of visits 25, Dec 2, 7, 1898 Jan 6, 7, Feb 2, 3, 7, 9, 11, 12, 19, 28, Mar 7, Apr 28, May 3, 4, 5, 11, 12, 18, 20, 23, 25, 27, 29
135 June 1, 2, 6, 8, 9, 13, 17, 20, 22, July 5, 8, 19, 26, 27, 29, Aug 5, 8, 10, 16, 23, 24, 25, 26, 31, Sep 8, 14, 21, 23, 26, 27, Oct 3, 6, 7, 13, 19, 20, 26, Nov 1, 3, 4, 7, 8, 11, 14, 17, 21, 22, 23, 25, 28, 30
General Remarks (State quality of workmanship, opinions as to class, &c.) Dec 5, 6, 10, 16, 17, 19, 23, 28.

The Machinery & Boilers of this Vessel have been surveyed during construction and while fitting on board. The material and workmanship are of good description constructed in conformity with the rules and were found efficient when tested under steam, and eligible in my opinion to be recorded in the Society's Register for M.C. 12.98 and Elec. Light.

It is submitted that
this vessel is eligible for
THE RECORD. + L.M.C. 12.98 Elec. Light

J.S.
7.1.99.

The amount of Entry Fee... £ 3 : 0 0 When applied for, 5 JAN 99
Special ... £ 43 : 18 : 0
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When received, 6 JAN 99

Committee's Minute LIVERPOOL - 6 JAN 99
Assigned L.M.C. 12.98.

J.M. Grogan
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

TUES. 10 JAN 1899
Lloyd's Register Foundation