

REPORT ON MACHINERY.

Port of Belfast

Received at London Office MON. 25 MAR 1895

No. in Survey held at Belfast

Date, first Survey Decem 13 1893 Last Survey March 18 1895

Reg. Book

(Number of Visits 47)

on the Steel screw Steamer "Mount Sion"

Tons { Gross 3280.3
Net 2116.2

Master E. Ellicott Built at Belfast By whom built Workman Clark & Co, Lim. When built 1895

Engines made at Belfast By whom made Workman Clark & Co, Lim. when made 1895

Boilers made at Belfast By whom made Workman Clark & Co, Lim. when made 1895

Registered Horse Power 350 Owners Smith & Service Port belonging to Glasgow

Nom. Horse Power as per Section 28 254

ENGINES, &c. — Description of Engines Triple Expansion No. of Cylinders 3

Diameter of Cylinders 23 : 37 : 63 Length of Stroke 42 Revolutions per minute 75 Diameter of Screw shaft as per rule 11.44
as fitted 12

Diameter of Tunnel shaft as per rule 11.17 Diameter of Crank shaft journals 12 Diameter of Crank pin 12 Size of Crank webs 8 x 22
as fitted 11 1/2

Diameter of screw 16.0 Pitch of screw 14.0 No. of blades 4 State whether moveable no Total surface 70 sq. ft.

No. of Feed pumps 2 Diameter of ditto 3 1/2 Stroke 21 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 4 Stroke 21 Can one be overhauled while the other is at work yes

No. of Donkey Engines two Sizes of Pumps Pearns hor. dup. 3 1/2 x 5 1/2 x 5 No. and size of Suctions connected to both Bilge and Donkey pumps
9 x 7 x 7

In Engine Room: Four suction 3 1/2 diam. In Holds, &c. No 1 hold, two 3 1/2. No 2 hold, two 3 1/2.
No 3 hold, two 3 1/2. No 4 hold, one 3 1/2. Tunnel well 3 1/2 suction.

No. of bilge injections 1 sizes 5 1/2 Connected to condenser, or to circulating pump circ. p. 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 Larger ones, valves, smaller, cocks.

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 before launch Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from upper engine gratings

BOILERS, &c. — (Letter for record S) Total Heating Surface of Boilers 3756

No. and Description of Boilers Two single-ended Working Pressure 180 Tested by hydraulic pressure to 360

Date of test 21.12.94 Can each boiler be worked separately yes Area of fire grate in each boiler 43.4 No. and Description of safety valves to each boiler Two, Adams patent Area of each valve 7.07 Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 12 Mean diameter of boilers 13.3

Length 11.0 Material of shell plates steel Thickness 1/4 Description of riveting: circum. seams middle treble ends double long. seams doubt. butt straps

Diameter of rivet holes in long. seams 1 7/16 Pitch of rivets 9 Lap of plates or width of butt straps 19 3/16 x 3/2

Per centages of strength of longitudinal joint 89.3 (cont. 88.6) Working pressure of shell by rules 193 Size of manhole in shell 16 x 12

Size of compensating ring 28 x 24 x 1 1/4 No. and Description of Furnaces in each boiler two Morrison Material steel Outside diameter 50 1/4

Length of plain part top Thickness of plates bottom 5/8 Description of longitudinal joint welded No. of strengthening rings —

Working pressure of furnace by the rules 200 Combustion chamber plates: Material steel Thickness: Sides 9/16 Back 9/16 Top 9/16 Bottom 1/16

Pitch of stays to ditto: Sides 7 3/4 x 6 1/4 Back 7 3/4 x 7 3/4 Top 7 3/4 x 6 1/4 If stays are fitted with nuts or riveted heads nuts inside Working pressure by rules 182

Material of stays steel Diameter at smallest part 1 3/8 Area supported by each stay 60 Working pressure by rules 197 End plates in steam space: Material steel Thickness 1/16 Pitch of stays 15 3/4 x 14 3/8 How are stays secured double nut small washers Working pressure by rules 207 Material of stays steel

Diameter at smallest part 2 1/2 Area supported by each stay 230 Working pressure by rules 197 Material of Front plates at bottom steel

Thickness 7/8 Material of Lower back plate steel Thickness 13/16 Greatest pitch of stays as approved Working pressure of plate by rules 180

Diameter of tubes 2 1/2 Pitch of tubes 3 7/8 x 3 7/8 Material of tube plates steel Thickness: Front 13/16 Back 7/8 Mean pitch of stays 7 1/2

Pitch across wide water spaces 15 1/2 Working pressures by rules 180+ Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8 x 1 1/2 Length as per rule 28 Distance apart 7 3/4 Number and pitch of Stays in each three at 6 1/4

Working pressure by rules 200 Superheater or Steam chest; how connected to boiler — 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 *Horizontal multitubular two-flue.*
 Made at *Belfast* By whom made *Workman Clark & Co Ltd* When made *1895* Where fixed *In stockhold*
 Working pressure *180* tested by hydraulic pressure to *360* No. of Certificate *209* Fire grate area *25 1/2* Description of safety valves *Adams patent*
 No. of safety valves *2* Area of each *3.14* Pressure to which they are adjusted *185* If fitted with easing gear *yes* If steam from main boilers can
 enter the donkey boiler *no* Diameter of donkey boiler *8' 6"* Length *8' 0"* Material of shell plates *steel* Thickness *7/8"*
 Description of riveting long. seams *Double straps, hot riv.* Diameter of rivet holes *15/16* Whether punched or drilled *drilled* Pitch of rivets *6 7/8"*
Rull straps Rivets *85.3* Thickness of shell *end* plates *29/32 upper* Radius of do. *13 x 13*
Lap of plating 14 x 2 1/2 Per centage of strength of joint Plates *86.3* Thickness of shell *end* plates *29/32 upper* Radius of do. *13 x 13*
 Dia. of stays. *2 1/16* eff. Diameter of furnace *Top 32" ex Bottom* Length of furnace *5' 7"* Thickness of furnace plates *9/8"* Description of
 joint *double straps* Thickness of *comb. cham* furnace *9/16 back + 3/4* plates *3/4 bottom* Stays by *1 3/8* eff. stays *4 3/4* max. pitch Working pressure of shell by rules *200 lb*
 Working pressure of furnace by rules *198 lb* Diameter of *tube* uptake *3"* Thickness of *tube* uptake plates *front 29/32 back 7/8* Thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:— *Propeller. Air & Circulating pump rod. Sl. valve spindle.*
Half set metallic valves for Air pump. Ditto for circulating pump. 12 boiler tubes. 4 donkey b. ditto.
Two top & two bottom end bolts & nuts. Two main bearing bolts & nuts. Two eccentric strap bolts & nuts.
Six screw shaft coupling bolts. 15 Condenser tubes & 30 ferrules. 12 pump ring bolts. Set feed & help pump.
 The foregoing is a correct description, *Main cheque valve. Fire bars for one boiler & 1/2 for donkey.*
 PRO **WORKMAN, CLARK & CO., LIMITED,** Manufacturer. *Assorted iron & bolt & nuts.*
W. H. Bell.

General Remarks (State quality of workmanship, opinions as to class, &c.)
 The machinery has been constructed under special survey & the quality of work is good throughout. The boilers are in accordance with the approved tracings & have been satisfactorily tested as required. Each length of main steam pipe has been tested by water to double the working pressure.
 The vessel ran a satisfactory trial trip on the 15th inst & the safety valves were found correctly adjusted. The donkey boiler may be used as an auxiliary boiler for supplying steam to the main engines, & will suffice alone for moving the vessel about in port.
 The main boilers are supplied with forced draught on Howden's system.
 Forwarded with this report are photographs of main & donkey boilers; tracings of pumping arrangements; forging certificate for shafting.
 The machinery in my opinion renders the vessel eligible for the notification + L.M.C. 3.95 to be recorded in the Register Book.

It is submitted that
 this vessel is eligible for
 THE RECORD + L.M.C. 3.95
 W.A.
 25-3-95

Certificate (if required) to be sent to
 The amount of Entry Fee. . . £ 3 : 0 :
 Special £ 32 : 14 :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : :
 When applied for, *23rd Mar 1895*
 When received, *24th 1895*
 A. L. Jones
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **TUES. 26 MAR 1895**
 Assigned *+ L.M.C. 3.95*


The Signatories are requested not to write on or below the space for Committee's Minute.