

REPORT ON MACHINERY.

TUES. 31 MAY 1904

Port of *Glasgow*

No. in Survey held at *Glasgow* Date, first Survey *1st Dec 03* Last Survey *19th May 1904*
 Reg. Book. on the *S.S. "MAIN."* (Number of Visits)
 Master *Glasgow* Built at *Glasgow* By whom built *Mackie & Thomson* When built *1904*
 Engines made at *Glasgow* By whom made *Muir & Houston. Rtd.* when made *1904*
 Boilers made at *Glasgow* By whom made *Muir & Houston. Rtd.* when made *1904*
 Registered Horse Power Owners Port belonging to
 Nom. Horse Power as per Section 28 *140* Is Refrigerating Machinery fitted *No* Is Electric Light fitted *No*

ENGINES, &c.—Description of Engines *Triple expansion—Screw* No. of Cylinders *3* No. of Cranks *3*
 Dia. of Cylinders *17", 28", 45"* Length of Stroke *33"* Revs. per minute *96* Dia. of Screw shaft *9 5/8"* Material of screw shaft *iron*
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube *yes* Is the after end of the liner made water tight
 in the propeller boss *yes* If the liner is in more than one length are the joints burned *yes* If the liner does not fit tightly at the part
 between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive If two
 liners are fitted, is the shaft lapped or protected between the liners Length of stern bush *3" 3"*
 Dia. of Tunnel shaft *as per rule 8.65* Dia. of Crank shaft journals *as per rule 9.09* Dia. of Crank pin *9 1/4"* Size of Crank webs *6th* Dia. of thrust shaft under
 collars *9 1/4"* Dia. of screw *11" 6"* Pitch of screw *12" 6"* No. of blades *4* State whether moveable *no* Total surface *50 sq. ft.*
 No. of Feed pumps *2* Diameter of ditto *2 3/4"* Stroke *19 1/8"* Can one be overhauled while the other is at work *yes*
 No. of Bilge pumps *2* Diameter of ditto *3"* Stroke *19 1/8"* Can one be overhauled while the other is at work *yes*
 No. of Donkey Engines *3* Sizes of Pumps *{ 6 x 4 x 6 } { 4 x 3 1/4 x 6 }* No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room *Two 2 1/2" dia.* In Holds, &c. *Two 2" dia.*

No. of bilge injections *1* sizes *3 1/2"* Connected to condenser, or to circulating pump *yes* Is a separate donkey suction fitted in Engine room of size *yes 2 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 *valves & cocks*
 Are they sized 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 *before launch* Is the screw shaft tunnel watertight *none*
 Is it fitted with a watertight door worked from

BOILERS, &c.— (Letter for record. (S) Total Heating Surface of Boilers *2350 sq. ft.* Is forced draft fitted *no*
 No. and Description of Boilers *One single ended.* Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs*
 Date of test *26/4/04* Can each boiler be worked separately Area of fire grate in each boiler *68 sq. ft.* No. and Description of safety valves to
 each boiler *2 Patent spring* 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 Mean dia. of boilers *16" 0"* Length *10" 9"* Material of shell plates *Steel*
 Thickness *1 5/16"* Range of tensile strength *28 to 32* Are they welded or flanged *no* Descrip. of riveting: cir. seams *double* long. seams *treble*
 Diameter of rivet holes in long. seams *1 5/16"* Pitch of rivets *8 1/2"* Lap of plates or width of butt straps *1" 6"*
 Per centages of strength of longitudinal joint rivets *88* Working pressure of shell by rules *181 lbs* Size of manhole in shell *16" x 12"*
 Size of compensating ring *flanged* No. and Description of Furnaces in each boiler *3 Deighton* Material *steel* Outside diameter *4" 1 1/2"*
 Length of plain part *top 19" bottom 32"* Thickness of plates *top 19" bottom 32"* Description of longitudinal joint *welded* No. of strengthening rings
 Working pressure of furnace by the rules *190 lbs* Combustion chamber plates: Material *steel* Thickness: Sides *3/32"* Back *1/32"* Top *3/32"* Bottom *3/32"*
 Pitch of stays to ditto: Sides *8 x 8* Back *8 x 8* Top *8 x 8 1/2"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *180 lbs*
 Material of stays *steel* Area at smallest part *1.45* Area supported by each stay *64* Working pressure by rules *181 lbs* End plates in steam space:
 Material *steel* Thickness *1 1/16"* Pitch of stays *17" x 17"* How are stays secured *nuts* Working pressure by rules *185 lbs* Material of stays *steel*
 Area at smallest part *5.56* Area supported by each stay *289* Working pressure by rules *197 lbs* Material of Front plates at bottom *steel*
 Thickness *1 3/16"* Material of Lower back plate *steel* Thickness *1 3/16"* Greatest pitch of stays *13" x 8"* Working pressure of plate by rules *196 lbs*
 Diameter of tubes *3 1/2"* Pitch of tubes *4 3/4" x 4 3/4"* Material of tube plates *steel* Thickness: Front *1 1/16"* Back *1 3/16"* Mean pitch of stays *9 1/2"*
 Pitch across wide water spaces *14 1/2"* Working pressures by rules *192 lbs* Girders to Chamber tops: Material *steel* Depth and
 thickness of girder at centre *8" x 2" - 1"* Length as per rule *2" 9"* Distance apart *8 1/2"* Number and pitch of Stays in each *3 - 8"*
 Working pressure by rules *180 lbs* 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

WS'83-0127

DONKEY BOILER— No. *One* Description *Bochran's patent.*
 Made at *Annan* By whom made *Bochran & Co* When made *1904* Where fixed *in stokehold*
 Working pressure *100* lbs tested by hydraulic pressure to *200* lbs No. of Certificate *7028* Fire grate area *12 1/2* sq ft Description of safety valves *patent spring*
 No. of safety valves *One* Area of each *7.07* Pressure to which they are adjusted *100* lbs If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *5.0* Length *10.0* Material of shell plates *steel* Thickness *13/32* Range of tensile strength *37-37* Descrip. of riveting long seams *double (lap)* Dia. of rivet holes *25/32* Whether punched or drilled *drilled* Pitch of rivets *2 5/8*
 Lap of plating *3 3/8* Per centage of strength of joint Rivets *40.4* Plates *40.2* Thickness of shell crown plates *1/2* Radius of do. *4.9* No. of Stays to do. *4*
 Dia. of stays *Sussex 1/2* Diameter of furnace Top *2.0* Bottom *✓* Length of furnace *✓* Thickness of furnace plates *7/16* Description of joint *riveted* Thickness of furnace crown plates *7/16* Stayed by *none* Working pressure of shell by rules *102* lbs
 Working pressure of furnace by rules *109* lbs Diameter of uptake tubes *2 1/2* Thickness of uptake plates *7/32 + 7/32* Thickness of stay tubes *1/4*.

SPARE GEAR. State the articles supplied:— *Two top end, & two bottom end connecting rod bolts; two main bearing bolts; one set of coupling bolts, and one set of feed & bilge pump valves, etc.*

The foregoing is a correct description,

James Stewart Manufacturer.

Dates of Survey while building
 During progress of work in shops— 1903: Dec. 1, 7, 15, 28. 1904: Jan. 6, 11, 20, 27. Feb. 4, 10, 15, 24, 29. Mar. 3, 7, 8, 15, 18, 23, 31.
 During erection on board vessel— April 1, 5, 18, 21, 23, 26. May 3, 5, 9, 10, 13, 16, 19.
 Total No. of visits *23* Is the approved plan of main boiler forwarded herewith *yes*

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery of this vessel has been constructed under special survey, the materials and workmanship are of good quality, it has been securely fitted on board, tried under steam & found satisfactory.*)

*In my opinion, it is eligible to be classed in the Register Book with the notation of **L.M.C. 5.04.***

It is submitted that this vessel is eligible for **THE RECORD** L.M.C. 5.04.

J.M.
1.6.04

Certificate (if required) to be sent to

The amount of Entry Fee... £ 2 : :
 Special ... £ 21 : :
 Donkey Boiler Fee ... £ : :
 Travelling Expenses (if any) £ : :
 When applied for, 30 MAY 1904
 When received, 31 MAY 1904

J.W. Dinmock
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute
 Assigned *L.M.C. 5.04.*
 Glasgow 30 MAY 1904



When fee is paid
 MACHINERY CERTIFICATE
 WRITTEN 30.5.04