

REPORT ON MACHINERY.

FRI. 20 APR 1900

Port of *Glasgow*

Received at London Office

No. in Survey held at *Glasgow* Date, first Survey *19 Decr 1898* Last Survey *11 April 1900.*
 Reg. Book. *S.S. "Clan MacLachlan"* (Number of Visits *38*)
 on the *S.S. "Clan MacLachlan"* Tons {Gross *4729.45*
 Net *3008.27*
 Master *D.W. Cameron* Built at *Glasgow* By whom built *A. Stephen & Sons* When built *1900*
 Engines made at *Glasgow* By whom made *A. Stephen & Sons* when made *1900*
 Boilers made at *Glasgow* By whom made *A. Stephen & Sons* when made *1900*
 Registered Horse Power *400* Owners *Layton Irvine & Co* Port belonging to *Glasgow*
 Nom. Hors. Power as per Section 28 *403* Is Refrigerating Machinery fitted *no* Is Electric Light fitted *yes*

ENGINES, &c.—Description of Engines *Triple expansion* No. of Cylinders *three* No. of Cranks *3*
 Dia. of Cylinders *25-41-67* Length of Stroke *48"* Revs. per minute *75* Dia. of Screw shaft *as per rule 12.7 13.8* Lgth. of stern bush *7'-8"*
 Dia. of Tunnel shaft *as per rule 11.5 12.49* Dia. of Crank shaft journals *as per rule 13.14* Dia. of Crank pin *13.5"* Size of Crank webs *9 1/2 x 17 1/4* Dia. of thrust shaft under collars *13 5/8* Dia. of screw *17.6* Pitch of screw *17-6* No. of blades *4* State whether moveable *yes* Total surface *91 sq ft*
 No. of Feed pumps *2 main* Diameter of ditto *4"* Stroke *27"* Can one be overhauled while the other is at work *yes*
 No. of Bilge pumps *two* Diameter of ditto *4"* Stroke *27"* Can one be overhauled while the other is at work *yes*
 No. of Donkey Engines *one duplex* Sizes of Pumps *6" x 4" x 6"* No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room *three 3 1/2"* In Holds, &c. *two 3 1/2" and two 6" connected to ballast pumps*
 No. of bilge injections *one size 7"* Connected to condenser, or to circulating pump *pump* 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 *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 *for bilge suction* How are they protected *with caement*
 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 *top platform*

BOILERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *5350 sq ft* Is forced draft fitted *yes*
 No. and Description of Boilers *two single ended cylindrical* Working Pressure *200 lbs* Tested by hydraulic pressure to *400 lbs*
 Date of test *25/12/99* Can each boiler be worked separately *yes* Area of fire grate in each boiler *59 sq ft* No. and Description of safety valves to each boiler *one pair direct spring* Area of each valve *11.04"* Pressure to which they are adjusted *205 lbs* Are they fitted with easing gear *yes*
 Smallest distance between boilers or uptakes and bunkers or woodwork *3'-2"* Mean dia. of boilers *15'-6"* Length *11'-6"* Material of shell plates *steel*
 Thickness *1 1/2"* Range of tensile strength *29/32* Are they welded or flanged *no* Descrip. of riveting: cir. seams *lap double* long. seams *butt triple*
 Diameter of rivet holes in tong. seams *1 1/32"* Pitch of rivets *9 1/8"* Lap of plates *20"* width of butt straps *20"*
 Per centages of strength of longitudinal joint rivets *88%* Working pressure of shell by rules *200 lbs* Size of manhole in shell *17" x 13"*
 Size of compensating ring *7" x 1/2"* No. and Description of Furnaces in each boiler *three furnace* Material *steel* Outside diameter *49"*
 Length of plain part top *✓* bottom *✓* Thickness of plates crown *37"* Description of longitudinal joint *welded* No. of strengthening rings *✓*
 Working pressure of furnace by the rules *200 lbs* Combustion chamber plates: Material *steel* Thickness: Sides *21/32* Back *21/32* Top *21/32* Bottom *3/4"*
 Pitch of stays to ditto: Sides *8 7/8 x 8 1/2 x 7 3/4* Back *8 7/8 x 8 7/8* Top *7 3/4 x 9 3/8* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *215, 200, 200*
 Material of stays *steel* Diameter at smallest part *1-7 7/8"* Area supported by each stay *7 1/2 x 17"* Working pressure by rules *210* End plates in steam space: Material *steel* Thickness *1 3/16"* Pitch of stays *19 x 19 1/8"* How are stays secured *2 nuts & doubling strips* Working pressure by rules *210 lbs* Material of stays *steel*
 Diameter at smallest part *7-4 9/16"* Area supported by each stay *27 1/2"* Working pressure by rules *200 lbs* Material of Front plates at bottom *steel*
 Thickness *2 3/8"* Material of Lower back plate *steel* Thickness *1 3/16"* Greatest pitch of stays *13 1/4"* Working pressure of plate by rules *350 lbs*
 Diameter of tubes *2 1/2"* Pitch of tubes *3 1/2 x 3 3/4* Material of tube plates *steel* Thickness: Front *7/8"* Back *7/8"* Mean pitch of stays *7 1/2"*
 Pitch across wide water spaces *14"* Working pressures by rules *490, 268* Girders to Chamber tops: Material *steel* Depth and thickness of girder at centre *8 3/8 x 15 1/16"* Length as per rule *30 7/16"* Distance apart *9 3/8"* Number and pitch of Stays in each *three 7 3/4"*
 Working pressure by rule *290* 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

If not, state whether, and when, one will be sent? Is a Report also sent on the Hull of the Ship?



DONKEY BOILER— No. *50K* Description *Cylindrical return tube*
 Made at *Glasgow* By whom made *A. Stephens Sons* When made *1900* Where fixed *in stow hold*
 Working pressure *100* tested by hydraulic pressure to *200* No. of Certificate *5779* Fire grate area *32 1/2* Description of safety valves *spring loaded*
 No. of safety valves *two* Area of each *5.939* Pressure to which they are adjusted *100* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Dia. of donkey boiler *10-0* Length *9-0* Material of shell plates *steel* Thickness *3/8* Range of tensile strength *27-32* Descrip. of riveting long. seams *lap tube* Dia. of rivet holes *27/32* Whether punched or drilled *drilled* Pitch of rivets *3 5/16*
 Lap of plating *6 3/8* Per centage of strength of joint *75.5* Rivets *86* Thickness of shell crown plates *5/8* Radius of do. No. of Stays to do.
 Dia. of stays. Diameter of furnace *Top 36 1/4 Bottom* Length of furnace *6-9* Thickness of furnace plates *1 1/2* Description of joint *butt joints* Thickness of furnace crown plates *1 1/2* Stayed by Working pressure of shell by rules *102*
 Working pressure of furnace by rules *121* Diameter of uptake Thickness of uptake plates Thickness of water tubes

SPARE GEAR. State the articles supplied:— *As required by the rules and in addition one span propeller and shaft complete.*

The foregoing is a correct description,
A. Stephens Sons Manufacturer.

Dates of Survey while building
 During progress of work in shops— 1898:- Dec. 19. 29. 1899:- Feb. 16. 28. Mar. 16. 23. 30. Apr. 28. May. 15. 23. 28. Jun. 6. 14. 11. 31.
 During erection on board vessel— Aug. 8. 15. 31. Sep. 15. 19. 28. Oct. 3. 24. Nov. 2. 20. 22. Dec. 21. 28. 1900:- Jan. 10. 12. Feb. 8. 19. 27. Mar. 5. 15. 27.
 Total No. of visits *38* Apr. 3. 6. 11. Is the approved plan of main boiler forwarded herewith *yes*
 " " " donkey " " " *yes*

General Remarks (State quality of workmanship, opinions as to class, &c.)
These engines and boilers have been built under special survey the materials and workmanship are of good description, they have been well fitted on board and tried under steam.

In my opinion this machinery is eligible to have notification of **L.M.C. 4.00** in the Register Book

It is submitted that this vessel is eligible for THE RECORD. **L.M.C. 4.00**. FD. Rec. light
W. H. 00
23. 4. 00

The amount of Entry Fee... £ 3 : : : When applied for,
 Special ... £ 40 : 3 : : 7. 11. 50.00
 Donkey Boiler Fee ... £ : : : : When received,
 Travelling Expenses (if any) £ : : : : 10. 11. 9.00

A. M. Keane
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **TUES. 24 APR 1900**
 Assigned *+ L.M.C. 4.00*
Elect. light



Certificate (if required) to be sent to Glasgow

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

MACHINERY CERTIFICATE WRITTEN